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(1)

S2/222

# MINUTES

## ACCREDITED STANDARDS COMMITTEE ON MECHANICAL SHOCK AND VIBRATION, S2

## U.S. TAG FOR ISO/TC108 MECHANICAL VIBRATION AND SHOCK

Baltimore, Maryland

1 May 1991



74 

ACOUSTICAL · SOCIETY · OF · AMERICA

OFFICE OF THE
STANDARDS SECRETARIAT

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# FOR THE

# U.S. NAVAL RESEARCH LABORATORY

Grant N00014-90-J-2017 plus Modification No. P00001
between
the U.S. Naval Research Laboratory
and
the Acoustical Society of America

**Submitted 2 August 1991 by:**

**Acoustical Society of America, Standards Secretariat**
**335 East 45th Street**
**New York, New York 10017-3483**

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2 August 1991

Director
Naval Research Laboratory
Attention: CODE 2627
Washington, DC 20375

Dear Sir:

RE: Grant N00014-90-J-2017 plus Modification No. P00001 between the Naval Research Laboratory and the Acoustical Society of America, in the sum of $22,000 ($12,000 plus $10,000), to support the Standards Program of the Acoustical Society, effective dates from 15 June 1990 to 14 June 1991

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We are pleased to enclose one (1) copy of the Final Technical Report which comprises four reports on the activities of the four Accredited Standards Committees which work was supported by the Naval Research Laboratory under the above referenced Grant.

Please let us know if we can be of further assistance. thanking you, we are

Sincerely,

Avril Brenig
Standards Manager

AB/li
Enclosures
cc: Beyer w/o enclosures
Eldred w/o enclosures
Embleton w/o enclosures
Schmid w/o enclosures

S12/206
ATTACHMENT W-5

# ACOUSTICAL SOCIETY OF AMERICA

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7 February 1991

Mr. Michael Bowers
Administration Conference of the U.S.
2120 L. Street N.W.
Suite 500
Washington, DC 20037

Dear Mr. Bowers:

At the recent meeting of Accredited Standards Committee S12, Noise, held in San Diego, California on 29 November 1990, Dr. Alice Suter informed the Committee about the imminent review by the U.S. Administration Conference of the lack of a national noise abatement program. We understand that the input of societies, organizations and individuals is being sought in this process.

A resolution was therefore adopted by the majority of those present at the S12 meeting, and ratified by vote, which closed on 31 January 1991. The resolution is as follows:

> that Accredited Standards Committee S12, and the U.S. Technical Advisory Group for ISO/TC 43/SC1 on Noise, strongly support the need for review of the requirement for, approaches and implementation of a National Noise Abatement program, and offer their professional expertise to assist in the formulation of a national strategy to arrive at the desired goals. The Committees consider these efforts of particular importance in order to remain competitive in the international arena with respect to noise control technology and noise environmental quality

In order to give you some background into the work of the Accredited Standards Committees for which the Acoustical Society holds the Secretariat (S1 on Acoustics, S2 on Mechanical Shock and Vibration, S3 on Bioacoustics, and S12 on Noise), we enclose a brochure describing the Standards Program of the Acoustical Society. Also enclosed is a Directory listing the participants in the Standards Program, and our most recent catalog of acoustical standards.

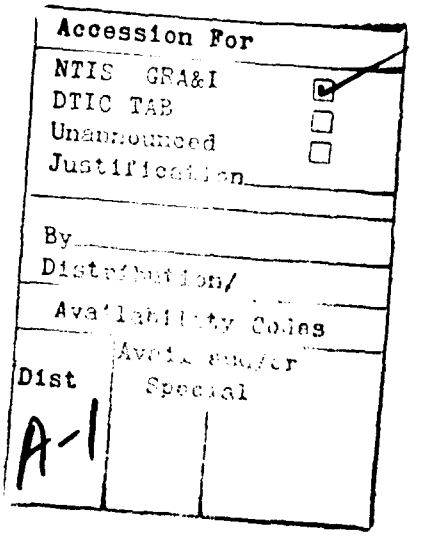
More information will be supplied to you as desired. We wish you success in your task and stand ready to assist in these endeavors.

Sincerely,

Avril Brenig
Standards Manager

cc: Eldred
Embleton
Johnson
Royster
Suter
von Gierke

# TABLE OF CONTENTS



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S2/222

# MINUTES

## ACCREDITED STANDARDS COMMITTEE ON MECHANICAL SHOCK AND VIBRATION, S2

## U.S. TAG FOR ISO/TC 108
## (including ISO/TC 108/SC1, ISO/TC 108/SC2, AND ISO/TC 108/SC3)

**1 May 1991**

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The meeting was called to order by Mr. S. Hayek, Chair S2, at 9:15 A.M. in the Washington Room, the Omni Inner Harbor Hotel, Baltimore, Maryland.

### ORGANIZATIONAL MEMBERS PRESENT

| | |
|---|---|
| Brenig, A. | ASA Standards Manager |
| Hayek, S.I. | Chair, ASA representative S2 |
| Lally, R.W. | PCB Piezotronics, Inc. |

### INDIVIDUAL EXPERTS PRESENT

| | |
|---|---|
| Feldman, S. | Member S2/WG76 and S2/WG65 |
| Maedel, P.H. Jr. | Chair S2/WG76; Member S2/WG65 |
| Muster, D. | U.S. TAG Chair, ISO/TC 108 |
| Serbyn, M.R. | Vice Chair; NIST; ASA alternate representative |

### OTHERS PRESENT

| | |
|---|---|
| Arrington, J.R. | U.S. Army Primary Standards Lab. |
| Bowser, R. | U.S. Navy; Chair S1/WG87 |
| Brockman, I.H. | Technical Advisor for IEC/TC 50 and IEC/SC50A and IEC/SC50B |
| Chandy, K.T. | Endevco Corporation |
| Evans, D.J. | NIST (alternate for S1); Member S12/WG29 |
| Gross, E.E. | Associate Editor for STANDARDS NEWS, JASA |
| Herstein, L.A. | Chair S2/WG72 |
| Lin, J. | PCB Piezotronics, Inc. (alternate for R.W. Lally) |
| Maxwell, D. | David Taylor Research Center; Member S2/WG72 |
| Reader, W. | Chair S2/WG79 |
| Strobel, W. | Member S2/WG76 |

1. Approval of the Minutes of the San Diego, California meeting, held 28 November 1990.

Upon motion made and seconded, it was

**VOTED** to approve the Minutes of the S2 meeting (S2/210) held on 28 November 1990, as circulated.

2. Organization

a) A list of current working groups is attached (see **ATTACHMENT A**).

b) New Organizational Member of S2 - ENDEVCO CORPORATION became an organizational member of S2, with K. Thomas Chandy as representative and Roger Volk as alternate.

c) New working groups:

S2/Advisory-Advisory Planning Committee to S2 - M.R. Serbyn, Chair

d) Personnel changes - Because of additional work responsibilities, Mr. R. Hric has resigned as Chair of S2/WG88. Mr. J.H. Pyne, currently Vice Chair, will assume the role of Chair for S2/WG88.

Mr. Peter Ying has retired and regrettably resigned as Chair of S2/WG78.

Mr. Hayek reported at the last meeting that several working groups require new chairs, as follows:

S2/WG66
S2/WG78
S2/WG82
S2/WG84
S2/WG85

e) Work in progress - for a summary, see **ATTACHMENT B**.

3. **Standards approved by ANSI in 1990/1991 and published (or being published) by ASA**

The following standard was approved by ANSI and published by ASA:

**ANSI S2.47-1990** - Vibration of Buildings - Guidelines for the Measurement of Vibrations and Evaluation of Their Effects on Buildings

3. **Standards approved by ANSI in 1990/1991 and published (or being published) by ASA (continued)**

Standards published by ASA can be ordered from the following address:

**Professional Book Distributors (PBD)**
**ASA Standards Distribution Center**
**1650 Bluegrass Lakes Parkway**
**Alpharetta, Georgia 30239**

**Telephone: (404) 442-8633**
**Telefax: (404) 442-9742**

NOTE: 20% discount on list price is available to ASA individual and sustaining members for all standards published by ASA.

4. **Organizational matters and reports on working groups, including reports on letter ballots and international matters**

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a) **S2/Advisory - Advisory Planning Committee to S2 - M.R. Serbyn, Chair**

At the last meeting of the ASACOS Steering Committee and of the individual S Committees meeting, it was decided to form Advisory Planning Committees to each of the S Committees, to be chaired by the Vice Chair of the S Committees. Please see **ATTACHMENT A** for the scope of this new working group. Mr. Serbyn said he expected to have a report to submit shortly.

b) **S3/WG39 (S2) - Human Exposure to Mechanical Vibration and Shock - H.E. von Gierke, Chair (Counterpart to ISO/TC 108/SC4)**

S3/WG39 (S2) met on Tuesday, 30 April 1991 at the ASA meeting. Mr. von Gierke reported at the last meeting (at the S3 meeting) on the documents discussed at the working group meeting, including those on taxonomy, whole body vibration, and ship vibration (the latter document received a negative vote by the U.S.). The long-term revision of ISO 2631 was still under development. New research was now surfacing on hand-arm vibration and white finger disease and will be studied further.

As a result of a questionnaire circulated to the working group in July 1990 (reported in the last Minutes (S2/210), a revised membership roster is expected to be prepared shortly.

Mr. von Gierke previously reported on the recent issuance by NIOSH of a report on hand-arm vibration criteria, which: (1) does not focus appropriately on the existing ANSI and ISO standards in the area, (2) suddenly recommends a

4. **Organizational matters and reports on working groups, including reports on letter ballots and international matters (continued)**

b) **S3/WG39 (S2) - Human Exposure to Mechanical Vibration and Shock - H.E. von Gierke, Chair (Counterpart to ISO/TC 108/SC4) (continued)**

different weighting for hand-arm vibration which would affect all tool manufacturers without specific basis, and (3) did not have the benefit of the input of the relevant cognizant ANSI committees in this area. Mr. von Gierke said at the last meeting that he planned to send a letter of protest on this document to the Assistant Surgeon General of the United States.

Because of the development of standards which conflict or otherwise differ from American National Standards (consensus standards) in this are, Mr. von Gierke asked those involved in the American Conference of Governmental Industrial Hygienists (ACGIH), which is not a government body, to write urging this organization to join the Standards Committees and to participate in, and follow, the development of American National Standards.

ACGIH had issued criteria for some environmental agents which conflicted with the S3 standard on hand-arm vibration, and this fact led to a need to harmonize in the future.

Mr. Marc Weiss, Naval Biodynamics Laboratory, New Orleans, Louisiana, has been officially appointed Convenor for ISO/TC 108/SC4/WG4 Human Impact Testing.

At the last meeting, Mr. H. von Gierke asked Mr. D.E. Wasserman to form an Ad Hoc Committee on Hand-Arm Vibration (see **ATTACHMENT C**). Please see **ATTACHMENT D** for Mr. Wasserman's reply to Mr. von Gierke.

The next meeting of ISO/TC 108/SC4 will take place from 1-4 October 1991, in Berlin, Germany.

c) **S2/WG54 - Atmospheric Blast Effects - J.W. Reed, Chair; J.H. Keefer, Vice Chair**

Previously, there was discussion of a proposed new international ISO work item relating to structure-borne noise and the question of how ANSI S2.20-1983 might fit into this charge. Mr. Reed reported earlier that there has been some progress in preparing a couple of reports for submission to the Standards Secretariat, to include explosive test data needed for citation support of airblast prediction procedures that will be included in revising S2.20-1983.

Mr. Reed reported prior to the meeting that there were no new activities to report and no changes in working group membership.

4. **Organizational matters and reports on working groups, including reports on letter ballots and international matters (continued)**

d) **S2/WG63 - Vibration and Shock Isolators - H. Himelblau, Chair; S. Rubin, Vice Chair**

Mr. Himelblau was previously asked to check the new edition of ISO 2041:1990 (recently published at ISO) to see whether the terms in both ISO 2041-1990 and the proposed revision of ANSI S2.8-1972 were in accord with references to other national terminology standards, as appropriate. At the last meeting, Mr. Muster said he would communicate with Mr. Himelblau regarding the terms in ISO 2041:1990.

Mr. Himelblau reported prior to the meeting that a proposed revision of ANSI S2.8-1972 Guide for Describing the Characteristics of Resilient Mountings (corresponding to ISO 2017:1973) had been sent to the working group members. He also said that it was intended to conduct working group business by mail.

At the meeting, Mr. Hayek said he would contact Mr. Himelblau in order to expedite preparation of this proposed standard for S2 ballot.

e) **S2/WG65 - Balancing Technology - D.G. Stadelbauer, Chair (Counterpart to ISO/TC 108/SC1**

The latest meeting of S2/WG65 was on 18 March 1990 in New York City. Bimonthly meetings are held regularly. Please see **ATTACHMENT E** for a report of this meeting.

S2/WG65 is presently working on revising and/or updating the following documents internationally:

ISO 1940 Part 2: Assessment of balance errors

ISO 3719 Balancing machines - Symbols for front panels

ISO 1925 Balancing - Vocabulary

ISO 2371 Field balancing equipment - Description and evaluation

ISO 5343 Criteria for evaluating flexible rotor balance

ISO 5406 Mechanical balancing of flexible rotors

The document on Susceptibility to Unbalance

ISO 2953 Balancing machines - Description and evaluation

The ANSI version of: ISO 8821 - Rotor shaft key convention has been drafted.

4. **Organizational matters and reports on working groups, including reports on letter ballots and international matters (continued)**

f) **S2/WG66 - Methods of Analyzing and Presenting Vibration and Shock Data - (Vacant)**

As previously reported, Mr. Hayek is seeking a new chair for this working group.

g) **S2/WG67 - Measurement and Evaluation of Vibration and Shock in Land Vehicles - F. Chen, Chair (Counterpart to ISO/TC 108/SC2/WG4)**

Mr. F. Chen has agreed to chair this working group. At the meeting, Mr. Chandy expressed interest in participating in this activity, both nationally and internationally. It was noted that four new work items had recently been proposed for the international working group (ISO/TC 108/SC2/WG4), which will be meeting next in Kobe, Japan.

h) **S2/WG69 - Seismic testing - G.E. Heberlein, Jr., Chair (Counterpart to IEC/SC50A/WG8)**

Mr. Heberlein previously reported that the working group had been set up to address the preparation of the international (IEC) standard for the development of a seismic test standard. Since the IEC standard has now been produced, Mr. Heberlein recommended that the working group be disbanded.

At the meeting, Mr. Irvin Brockman, newly appointed U.S. Technical Advisor for IEC/SC50A, said he believed that IEC/SC50A/WG8 had now been disbanded. If so, the counterpart national working group will similarly be discharged, following ballot in S2.

i) **S2/WG72 - Vibration Testing - L. Herstein, Chair; C. Booth, Vice Chair (Counterpart to ISO/TC 108/WG4 and IEC/SC50A)**

Mr. Herstein previously reported that the conversion of ISO 8626-1989 Servo-hydraulic test equipment for generating vibration - Method of describing characteristics to a proposed American National Standard is being prepared. He said he had noted several relatively minor changes required for ANSI S2.45-1983 (R 1990) Electrodynamic test equipment for generating vibration - Methods of describing equipment characteristics.

Mr. Herstein reported prior to the meeting that since the last meeting, attempts had been unsuccessful to recruit new working group members. He said he would go ahead with the changes to ISO 8626-1989 as circulated last Fall.

The working group met on 1 May 1991 at the ASA meeting (see **ATTACHMENT F** for a report).

4. **Organizational matters and reports on working groups, including reports on letter ballots and international matters (continued)**

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i) **S2/WG72 - Vibration Testing - L. Herstein, Chair; C. Booth, Vice Chair (Counterpart to ISO/TC 108/WG4 and IEC/SC50A (continued)**

Ms. Brenig previously reported discussions had taken place with NAVSEA to begin work to convert the two parts of MIL Standard 740C - MIL-740-1 Airborne Sound Measurements and Acceptance Criteria of Shipboard Equipment and MIL-STD-740-2 Structure - Borne Vibratory Acceleration Measurements and Acceptance Criteria of Shipboard Equipment as proposed national standards. One of these would fall under the scope of S2/WG72 and the other item within the scope of S12.

At the last meeting, Mr. Donald Maxwell of the David Taylor Research Center said he would be pleased to assist Mr. Herstein in the task of pressing the Naval Sea Systems Command to take action on the conversion of the two MIL specifications to proposed national (S2) standards.

Mr. Muster spoke, at the last meeting, of the establishment in Milan of the Steering Committee for Vibration Generating Systems (SCVGS) and the change in scope of ISO/TC 108/WG4 (reported in the last Minutes, S2/210). ISO/TC 108/WG4 met in February 1991 in Vienna, Austria - see report on ISO/TC 108 activities in **ATTACHMENT G**.

At the meeting, an update on the various activities internationally were given by Mr.Muster and Ms. Brenig, respectively. Essentially, the ISO/TC 108 Secretariat had been contacted by the Chair of IEC/SC50A, Mr. Harry Goldberg of the U.K., in order to state that liaison between ISO/TC 108/WG4 Vibration Testing Equipment and IEC/SC50A Shock and Vibration Tests was considered of importance (see respective resolutions from the ISO/TC 108 meeting in Milan, Italy, in April 1990 and those of IEC/SC50A, taken in Osaka, Japan in October 1990 - **ATTACHMENT H**). IEC and ISO had therefore been asked to formally establish these ties. Apparently, this could not be accomplished procedurally without ISO/TC 108/WG4 being a Subcommittee, which change in status was now being requested by IEC/SC50A. Added to this impetus for change, the number of work items under development in ISO/TC 108/WG4 was too many for a working group to handle under ISO procedures. For these reasons, a transformation of ISO/TC 108/WG4 into a new Subcommittee of ISO/TC 108 (i.e., ISO/TC 108/SC6), was simultaneously being proposed by the ISO/TC 108 Secretariat, as part of the overall restructuring plan for ISO/TC 108. Four working groups had already been formulated to come under this new ISO/TC 108 Subcommittee.

Further interactions between IEC/SC50A and ISO/TC 108/WG4 (to become ISO/TC 108/SC6) and their counterparts nationally (in S2) would therefore take place in due course.

4. Organizational matters and reports on working groups, including reports on letter ballots and international matters (continued)

j) S2/WG73 - Characterization of Damping Materials - A.F. Kilcullen, Chair (Counterpart to ISO/TC 108/WG13)

Mr. Kilcullen recently assumed responsibility for this working group.

k) S2/WG74 - Measurement of Mechanical Mobility - P.K. Baade, Chair

Mr. Baade reported prior to the meeting as follows:

> Revision of ANSI S2.31-1979 and ANSI S2.32-1982 to conform to ISO 7676 Parts 1 and 2 has been delayed due to other obligations of the chairman. Hopefully, these should be completed this summer.
>
> The working group is awaiting the publication of ISO 7626 Part 5 which will then be converted into the corresponding ANSI standard S2.35. No other activities are planned at this time.

Mr. Baade also noted the need for more members of this working group.

l) S2/WG76 - Measurement and Evaluation of Machinery Vibration - P.H. Maedel, Chair (Counterpart to ISO/TC 108/SC2/WG1)

Regular bimonthly meetings of S2/WG76 have been held since the last meeting of S2. Many documents are being processed, both nationally and internationally, within S2/WG76

Mr. Maedel's report, submitted prior to the meeting is attached (see ATTACHMENT I). Also attached is a report on the recent meeting of ISO/TC 108/WG17 attended by Mr. Werner Strobel (ATTACHMENT J).

m) S2/WG77 - Measurement and Evaluation of Ship Vibration - A. Kilcullen, Chair (Counterpart to ISO/TC 108/SC2/WG2)

Mr. Kilcullen reported prior to the meeting as follows:

> S2/WG77 last met on 22 February 1991 and reviewed the situation with ISO/DIS 6954 (REV) which has recently been rejected. The Chairman and Mr. E.F. Noonan are preparing a document on signal analysis and multifrequency component analysis which is intended to supplement the current (operative) ISO 6954. This will be completed by year end (1991).
>
> Work on revising ISO 4867/4868 as ANSI documents was interrupted due to time consumed in developing a U.S. position on ISO/DIS 6954 (REV). This editing will resume.

4. **Organizational matters and reports on working groups, including reports on letter ballots and international matters (continued)**

m) **S2/WG77 - Measurement and Evaluation of Ship Vibration - A. Kilcullen, Chair (Counterpart to ISO/TC 108/SC2/WG2) (continued)**

While U.S. (through S2/WG77) approved ISO/DIS 10055, there may be one corrective action to be taken concerning testing equipment with mounts.

n) **S2/WG78 - Measurement and Evaluation of Structural Vibration - (Vacant) (Counterpart to ISO/TC 108/SC2/WG3)**

**ANSI S2.47-1990** Vibration of Buildings - Guidelines for the Measurement of Vibrations and Evaluation of their Effects on Buildings was approved by ANSI as S2.47-1990 on 10 September 1990 (see Section 3, page 2 of these Minutes).

Mr. P. Ying regrettably resigned as Chair of this working group because he is retiring. Mr. Hayek, Chair S2, and Ms. Brenig expressed their thanks to Mr. Ying and wished him happiness in his retirement.

At the meeting, Mr. Hayek reported that Mr. David Siskind had agreed to take on the chairmanship of this working group, pending approval of his employing organization.

o) **S2/WG79 - Characterization of the Dynamic Mechanical Properties of Viscoelastic Polymers - W. Reader, Chair; W. Madigosky, Vice Chair**

Mr. Reader reported prior to the meeting that S2/WG79 met on 29 November 1990 in San Diego, California (see **ATTACHMENT K** for his report), and on 15 February 1991 in San Diego, California.

p) **S2/WG80 - Vibration and Shock Terminology - D. Muster, Chair (Counterpart to ISO/TC 108/WG1)**

**ISO 2041:1990 Vibration and Shock - Vocabulary**, has been published as an international standard. The standard will be prepared as a proposed ANSI standard and circulated to S2 shortly for ballot. S2 members will be encouraged to approve the national counterpart of ISO 2041:1990, since it is in the same form as when it was approved internationally by the U.S. TAG (S2).

It was also previously proposed that the Chairs of the ASA Technical Committees receive the documents for their input, as they become available.

4. **Organizational matters and reports on working groups, including reports on letter ballots and international matters (continued)**

p) **S2/WG80 - Vibration and Shock Terminology - D. Muster, Chair (Counterpart to ISO/TC 108/WG1) (continued)**

It was reported (at the last meeting) that a terminology document (on Acoustics and Electroacoustics) was circulated to S2 for information and comment (S2/213) on 20 November 1990. This document was also sent to S1, S3 and S12 for ballot, which was closed on 2 January 1991. Chairs of the ASA Technical Committees, and all other interested parties, were also sent the acoustical terminology standard for their information and comment.

The S2 comments which were received, were submitted to Mr. Johnson for review with the other comments (for S1, S3 and S12) as a result of the respective ballots.

q) **S2/WG81 - Use and Calibration of Vibration and Shock Measuring Instruments - B. Douglas, Chair; M.R. Serbyn, Vice Chair (Counterpart to ISO/TC 108/SC3)**

Mr. Douglas reported prior to the meeting (see **ATTACHMENT L**).

At the last meeting, Mr. Douglas recommended the reaffirmation of ANSI S2.46-1989 Characteristics to be specified for Seismic Transducers (Counterpart to ISO 8042-1989), and the withdrawal of ANSI Z24.21-1957 Specifying the characteristics of pickups for shock and vibration measurement, since the latter standard has now been superseded. An administrative ballot (S2/217) was circulated to S2 on 15 February 1991. This ballot closed on 29 March 1991 with unanimous approval of the recommended actions. The results are given in **ATTACHMENT M** to these Minutes.

r) **S2/WG82 - Flexible Couplings - (Vacant)**

There has been no progress to report in this area. At the meeting, therefore, following discussion, and on motion made and seconded, it was

**VOTED** that if there is no activity in this area, national or international, by the time of the next meeting (November 1991), that the working group S2/WG82 Flexible Couplings should be disbanded.

It was noted that between now and the next meeting, the S2 Chair should try to initiate contacts with, for example, the Flexible Coupler Manufacturers Association, and any other organizations, or individuals, who might be interested in this area.

4. Organizational matters and reports on working groups, including reports on letter ballots and international matters (continued)

s) S2/WG83 - Acoustic Vibration Testing - G. Getline, Chair (Counterpart to IEC/SC50A/WG11)

Mr. Getline reported prior to the meeting as follows:

> S2/WG83 is presently awaiting results of the IEC/SC50A meeting at Osaka, Japan in October 1990. When these are received and evaluated, our activities report will be submitted to ASA Standards; IEC/SC50A/WG11, Document 50A(Secretariat)262 Vibration, Acoustically Induced.

t) S2/WG84 - Counterpart to IEC/SC50A/WG12 - Revision of the Dynamic Tests - Bump, Shock, etc..., of IEC Publication 68 - (Vacant)

It was previously decided to see who in the U.S. (government or military) would be interested in this activity (and that of S2/WG85, below).

u) S2/WG85 - General Counterpart to IEC/SC50A - (Vacant)

See above (S2/WG84).

v) S2/WG86 - Methods for Measuring and Reporting Vibration and Shock Resistance of Motion-Sensitive Equipment - R. Frey, Chair (Counterpart to ISO/TC 108/WG16)

ISO/TC 108/WG16 met in Milan, Italy and is currently working on a proposed revision of ISO 8569-1989.

Mr. Frey reported on a meeting of working group ISO/TC 108/WG16 on 31 May 1990 in Chester, New Jersey in the last Minutes (S2/210).

Mr. Frey reported prior to the meeting that there had been no changes or activity since the last report.

w) S2/WG87 - Shock Testing Machines (Counterpart to ISO/TC 108/WG15) - R. Bowser, Chair

This working group was established to coordinate activity with the international working group which has produced a standard (ISO 8568:1989).

4. Organizational matters and reports on working groups, including reports on letter ballots and international matters (continued)

w) S2/WG87 - Shock Testing Machines (Counterpart to ISO/TC 108/WG15) - R. Bowser, Chair (continued)

Mr. Bowser has assumed responsibility for this working group and will be asked to prepare ISO 8568:1989 as a proposed ANSI standard.

At the meeting, Mr. Bowser asked for names of those who are interested in this subject, to contact him to participate in the work.

x) S2/WG88 - Measurement and Evaluation of Machine Tool Vibration - J.H. Pyne, Chair

Mr. Hric reported prior to the meeting (see **ATTACHMENT N** for his report).

Mr. Hric has resigned as Chair of this working group due to reorganization of his company and added workload. Mr. J.H. Pyne, Vice Chair of S2/WG88, has now assumed responsibility as Chair of the working group.

5. International Organization for Standardization (ISO) - Technical Committee ISO/TC 108 on Mechanical Vibration and Shock - D. Muster, U.S. Technical Advisor

General

A memorandum requesting a review of the lists of ISO standards and comparison with their national (U.S.) counterparts, was received from ANSI, dated 7 June 1990. This memorandum was passed onto the U.S. TAG Chairs for the various ISO activities in which the U.S. TAG is responsible.

Responses were requested by the Standards Secretariat by 7 January 1991. A copy of the relevant correspondence is attached (**ATTACHMENT O**).

International documents processed by the Standards Secretariat are listed in **ATTACHMENT G**.

At the last meeting, Mr. Douglas Muster, U.S. TAG Chair for ISO/TC 108, drew attention to the April 1990 meeting of ISO/TC 108 in Milan, Italy, and spoke of the areas of emerging technology, notably in vibration condition monitoring, and modal analysis.

Mr. Muster said that two new working groups had been set up under ISO/TC 108 for this purpose, and that both would be meeting initially in conjunction with international technical conferences.

The scope of ISO/TC 108 had been amended to include vibration condition monitoring, as one of the examples of work listed:

5. **International Organization for Standardization (ISO) - Technical Committee ISO/TC 108 on Mechanical Vibration and Shock - D. Muster, U.S. Technical Advisor (continued)**

**General (continued)**

ISO/TC 108 Mechanical Vibration and Shock

- Standardization in the field of mechanical vibration and shock including:
  - terminology;
  - excitation by sources, such as machines, and vibration and shock testing devices;
  - elimination, reduction and control, especially by balancing, isolation and damping;
  - measurement and human evaluation of shock and vibration exposure;
  - methods and means of measurement and calibration;
  - methods of testing;
  - methods of measuring, handling and processing the data required to perform vibration condition monitoring

Further information on these two new working groups set up under ISO/TC 108 and a Steering Committee and an update on their activities, was given by Mr. D. Muster at the S2 meeting:

a) Working group on Vibration Condition Monitoring - ISO/TC 108/WG17:

To develop international standards related to vibration condition monitoring of rotating and reciprocating machinery

The initial meeting of ISO/TC 108/WG17 was held on 14 March 1991, in Houston, Texas, following a meeting on standardization and condition monitoring, the Standardization and Condition Monitoring Workshop (SCMW-91), which took place from 11 to 13 March 1991, also in Houston, Texas. (See **ATTACHMENT P** for reports on both of these meetings.)

At the last meeting, following discussion, and on motion made and seconded, it was

**VOTED** that Standards Committee S2 endorse the activities of the efforts of those in the field of condition monitoring to establish a working group or, if appropriate, a Subcommittee within ISO/TC 108, to develop this area of technology. It recognizes that this action would require a change in the scope of ISO/TC 108 and recommends that the Technical Committee change its scope appropriately in order to encompass this new standards developing activity.

5. **International Organization for Standardization (ISO) - Technical Committee ISO/TC 108 on Mechanical Vibration and Shock - D. Muster, U.S. Technical Advisor (continued)**

**General (continued)**

**a) continued**

A similar change in scope for S2 will be considered at a later date, in line with international developments in the emerging technologies. In the meantime, working group activity will be established in S2, as required, to parallel ISO/TC 108/WG17 and ISO/TC 108/WG18.

A Letter Ballot (**LB/S2/215**) was therefore circulated to S2 on 11 January 1991 for approval of the above resolution. The ballot closed on 22 February 1991 with majority approval of the above recommendations. The results of the ballot are given in **ATTACHMENT Q**. (Following receipt of change of vote by R.W. Lally on 6 June 1991, the final tally resulted in unanimous approval.)

At the meeting, Mr. Muster referred to the reports issued on the meetings of the SCMW-91 and the initial meeting of ISO/TC 108/WG17. He noted the general participatory interest expressed, and the resultant success of both endeavors, and the fact that ISO was preparing an assessment document on emerging technologies which would utilize the ISO/TC 108 approach to handling emerging technologies (notably in putting together an international technical workshop followed by a working group meeting designed to extract suitable elements for international standardization). ISO/TC 108 was therefore considered by ISO to be in a leadership role in the current fields of interest.

Mr. Muster spoke of the proposals for restructuring ISO/TC 108 in various areas (see d) below) to include a new Subcommittee on Condition Monitoring and Diagnostics (ISO/TC 108/SC5) to replace ISO/TC 108/WG17, in order to undertake the processing of the more than one hundred (100) work items which were proposed as a result of the SCMW-91 (see **ATTACHMENT P** for reports on both the SCMW-91 and ISO/TC 108/WG17 meetings).

There would also be a new ISO/TC 108 Secretariat Steering Committee established for the purpose of monitoring, and harmonizing, as required, the activities of ISO/TC 108/SC5 and other segments of ISO/TC 108 and its Subcommittees (e.g. ISO/TC 108/SC2/WG1), as well as those of any outside organizations, to ensure that their respective activities could proceed in accordance with their individual work programs.

Mr. Muster noted that the Secretariat of the future ISO/TC 108/SC5 would be in the U.S. and that funding to cover this increased activity and responsibility was currently being arranged.

5. **International Organization for Standardization (ISO) - Technical Committee ISO/TC 108 on Mechanical Vibration and Shock - D. Muster, U.S. Technical Advisor (continued)**

b) Working group on Modal Analysis - ISO/TC 108/WG18:

To develop an international standard or standards concerned with the application of modal analysis methods to the design of engineering systems

The first meeting of ISO/TC 108/WG18 will take place on Monday, 10 June 1991 at the British Standards Institution, the BSI Conference Centre, Hampden House, London, United Kingdom. This meeting was initially scheduled to take place in conjunction with the International Modal Analysis Conference which was to take place 14-18 April 1991 in Florence, Italy, but was subsequently canceled.

No plans were underway to transform ISO/TC 108/WG18 into a Subcommittee since its activities could at this time well be handled by one working group.

c) (i) At Milan, Italy, a Steering Committee for Vibration Generating Systems was set up with D. Muster acting as Project Leader for this group, as well as the two new working groups noted above:

ISO/TC 108 agreed to establish a Steering Committee for Vibration Generating Systems (SCVG) to be formed to assist the Secretariat of ISO/TC 108 in organizing and monitoring the ongoing and future work in this area. The charge to the SCVG includes reviewing proposed work items and preparing a plan for administering work items and preparing a plan for administering the work of ISO/TC 108 related to the vibration generators, such as electrodynamic and servo-hydraulic shakers. This plan shall take into account (by liaison) work being performed by IEC/SC 50A with the aim of achieving harmonization.

(ii) *The scope of ISO/TC 108/WG4 was revised as follows:*

To develop international standards related to vibration generators and their ancillary equipment used to conduct test.

(iii) A meeting was held on 19 February 1991 for ISO/TC 108/WG4 in Vienna.

See the discussion under S2/WG72 for plans for the future work of ISO/TC 108/WG4, which as noted, is expected to be proposed as ISO/TC 108/SC6. Plans for this ISO/TC 108 Subcommittee will be included in the overall changes planned for ISO/TC 108.

5. **International Organization for Standardization (ISO) - Technical Committee ISO/TC 108 on Mechanical Vibration and Shock - D. Muster, U.S. Technical Advisor (continued)**

d) An Ad Hoc Meeting of the ISO/TC 108 Secretariat Steering Committee was held on Tuesday, 18 December 1990, at the BSI Conference Centre, London, United Kingdom. Please see **ATTACHMENT R** for a report of this meeting.

Mr. Muster gave a short overview (in slide form) of the structure of ISO/TC 108: as it was in 1963, currently (1991) and the view of ISO/TC 108 beyond 1991 (see **ATTACHMENT S**).

Discussions ensued on the proposals, with ISO/TC 108/SC2 to encompass machines and structures, no change to ISO/TC 108/SC1, ISO/TC 108/SC3, or ISO/TC 108/SC4, and the establishments of Subcommittees ISO/TC 108/SC5, Condition Monitoring and Diagnostics of Machines, ISO/TC 108/SC6 Vibration Testing Equipment, ISO/TC 108/SC7 Vibration of Ships, and ISO/TC 108/SC8, Vibration of Vehicles, plus various harmonizing Steering Committees. It was generally understood that parallel changes in S2, including its scope, should be considered at the S2 meeting in November 1991, following the Kobe, Japan meeting of ISO/TC 108. (See page 14 regarding the future change in scope proposed in S2).

Following discussion and on motions made and seconded, it was

**VOTED** that S2 endorses the Acoustical Society undertaking responsibility for the Secretariat of ISO/TC 108/SC5 on Condition Monitoring and Diagnostics of Machines,

and

**VOTED** that the U.S. Technical Advisory Group (TAG) for ISO/TC 108, which is Accredited Standards Committee S2 on Mechanical Shock and Vibration wishes the U.S. Member Body for ISO (the American National Standards Institute - ANSI) to register as a P (participating) Member in the activities of the new Subcommittees (ISO/TC 108/SC5 Condition Monitoring and Diagnostics of Machines, ISO/TC 108/SC6 Vibration Testing Equipment, ISO/TC 108/SC7 Vibration of Ships, and ISO/TC 108/SC8, Vibration of Land Vehicles) when they are officially established in ISO/TC 108

S2 previously voted to approve the change in scope of ISO/TC 108 to accommodate the work of Condition Monitoring (see item 5(a), on page 14).

Mr. Muster noted (see also Minutes of the ISO/TC 108/WG17 meeting) that the ISO Technical Management Council had approved the proposed change in scope for ISO/TC 108 and had, in fact, asked and encouraged ISO/TC 108 to undertake this expanded activity in various written communications.

6. **IEC/SC50A Shock and Vibration Tests - I. Brockman Technical Advisor - D. Muster, U.S. Deputy Technical Advisor**

Mr. Brockman was appointed by the U.S.N.C. of IEC to succeed Mr. Carter as Technical Advisor for IEC/TC 50 and its Subcommittees (December 1990).

A letter dated 1 February 1991 was received by the ASA Standards Secretariat from Mr. G.B. Robinson, Secretary to IEC/SC 50A (see **ATTACHMENT T**). Mr. Brockman was in attendance and was introduced at the S2 meeting.

It was previously reported that Mr. Douglas Muster had been nominated for the position of Deputy Technical Advisor to IEC/SC50A Shock and vibration Tests. (This has now been approved by S2 - see report on procedural ballots below.)

A report on the IEC/SC50A meeting at Osaka, Japan, has been received (see **ATTACHMENT H**).

At the S2 meeting, Mr. Brockman said he was basically orienting himself to this new task and would appreciate meeting with Mr. Muster, Deputy U.S. Technical Advisor for IEC/SC50A. Mr. Muster said he wished to determine, first of all, his role and assignments in terms of this IEC Subcommittee.

**NOTE:** Following a brief meeting and discussion between Messrs. Brockman and Muster after the S2 meeting, it was agreed that they would submit a letter or document for S2 at its next meeting, which would disclose a plan for the activities and interaction of S2 and the U.S. TAG for IEC/SC50A (S2 has been assigned official responsibility for this IEC Subcommittee by ANSI).

7. **Review of Standards more than five years in existence**

Section 4.4 of the ANSI Procedures for the Development and Coordination of American National Standards requires that each complete American National Standard (including its supplements and addenda) be reviewed at least every five years to determine whether it should be reaffirmed, revised, or withdrawn. Provision is made for extensions of time, except that no extension is granted beyond ten years from the date of approval by ANSI.

Fifteen (15) S2 standards were reaffirmed by ANSI in 1990 (listed in S2 Minutes S2/205). The S2 standards will be closely reviewed to see which ones now require revision, in line with ANSI Procedures for the timely update of standards.

8. **New International Standards Available from ANSI**

ISO 9688:1990 Mechanical vibration and shock - Analytical methods of assessing shock resistance of mechanical systems - information exchange between suppliers and users of analyses

9. **Documents from other organizations submitted to S2 for vote and/or comment**

None to date.

10. **Procedural Ballots**

a) According to ANSI's procedures, under which the Accredited Standards Committee operate, the Officers of the Standards Committees are to be confirmed (at the beginning of their terms), as well as Individual Experts (the latter to be confirmed annually) by the respective Standards Committees.

The Officers and Individual Experts are proposed by the ASA Committee on Standards (ASACOS) as the Secretariat for the Standards Committees, in concert with the Chairs of the respective Standards Committees.

Accredited Standards Committee S2, as the Technical Advisory Group for ISO/TC 108, also ratifies appointments of TAG Chairs of ISO/TC 108.

A ballot was circulated to S2 (**LB/S2/214**) on 22 January 1991, with proposed appointments for 1991/1992. The ballot closed on 5 March 1991 with majority approval of the list of officers and individual experts for 1991/1992. The results of the ballot are given in **ATTACHMENT U**.

b) The request for organizational membership by ENDEVCO CORPORATION was submitted to S2 (**LB/S2/216**) on 1 February 1991. The ballot closed on 8 March 1991 with unanimous approval. The results are given in **ATTACHMENT V**. Mr. K.T. Chandy was welcomed at the S2 meeting.

c) At the last meeting of ASACOS held on Monday, 26 November 1991, it was decided that the Accredited Standards Committee Procedures should contain an additional section relating to the conciliation of negative votes and positions on documents sent for ballot. It was also considered appropriate to amend the wording of clause 8.6 of the Accredited Standards Committee Procedures in line with the changes which had occurred in the ANSI procedures, since they were approved by ANSI on 9 September 1987. A ballot was therefore circulated to S2 (**LB/S2/218**) on 1 February 1991. The ballot closed on 15 March 1991 with unanimous approval of the proposed amendments to the Standards Committee Procedures. The results are given in **ATTACHMENT W** of these Minutes.

d) Please refer to item 5 a) on page 14, for a report on the procedural ballot relating to the S2 endorsement of a proposed change in scope for ISO/TC 108, to encompass condition monitoring.

11. **Other Business**

a) S2 should decide whether to form a working group to consider the revision of **S9.1 ANSI Standard Guide for the Selection of Mechanical Devices used in Monitoring Acceleration Induced by Shock**. It was previously agreed that the scope of the standard should be examined closely before deciding whether to form an S2 working group.

b) **Review of the S2 organization**

At previous meetings, the need for more organizational members for S2 was stressed. Mr. Hayek will contact representatives of the aerospace and automotive industries in this regard.

c) It was suggested that it would be useful to have a list of ISO/TC 108 standards, and proposed standards, with decisions to be made by S2 (U.S. TAG for ISO/TC 108) on which ones should be recommended as proposed American National Standards. This list could be prepared with a timetable for preparation of those standards which are considered suitable for conversion. It was previously agreed that such a compilation of proposed national standards, with individual time schedules, would be most helpful.

At the last meeting, Mr. Hayek noted that an S2 Advisory Planning Committee would be set up to prepare a standards development plan over three years, taking into account the updating and revision of S2 standards five, and then ten years or older. This working group (S2/Advisory) has been set in place (see **ATTACHMENT A** for the scope of this new working group, and there should be a report at the next meeting (see item 4 a), page 3).

d) **Project Initiation Notification System (PINS) forms requested by ANSI**

The Standards Secretariat provided ANSI, on 11 December 1989, with a current list of S2 projects for use under the new Project Initiation Notification System (PINS). These are expected to be tabulated in a computerized system eventually by ANSI.

e) The formation of the Shock and Vibration Information Analysis Center (SAVIAC) on 16 March 1990 was noted.

f) (i) At the S3 meeting, Mr. Galloway said that ASACOS had convened an ad hoc committee to revise the ASACOS Editorial Guidelines to make them consistent with the newly revised ANSI Style Manual. This ANSI Style Manual utilizes Part 3 of the ISO Directives and also recommends submission of draft standards in electronic format (using word perfect 5.1).

(ii) Additionally, it was stated that ASACOS had adopted a policy on metrication, endorsing that of ANSI, to use SI units in all new standards.

12. **Future Meetings**

The next meeting of S2 will be held on Wednesday, 6 November 1991, in Houston, Texas, commencing at 9:00 A.M.

13. **Adjournment**

The meeting was adjourned at 11:35 A.M.

Avril Brenig
Standards Manager

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ATTACHMENT A-1
S2/222

## ACCREDITED STANDARDS COMMITTEE ON MECHANICAL SHOCK AND VIBRATION - S2

**SECRETARIAT:** Acoustical Society of America

**SCOPE:** Standards, specifications, methods of measurement and test, and terminology in the fields of mechanical shock and vibration, but excluding those aspects which pertain to biological safety, tolerance and comfort.

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| WORKING GROUP | TITLE AND SCOPE | CHAIR |
|---|---|---|
| (a) S2/Advisory | **S2 Advisory Planning Committee** - Be cognizant of standards needs within the scope of the Committee, and organize those needs in accordance with priority, and other relevant factors, into a coherent three year plan for Committee activity. This three year plan for the preparation of standards should include those which need updating, having regard to the international work items and standards, and the need for timely review (reaffirmations, revisions, withdrawals, etc.) of all national standards, and the priority of new standards needs.<br><br>The plan of action should be developed with attention to (i) the overall Committee scope, (ii) its technological needs, (iii) the relation of national to international standardization, (iv) the rate of development of new standards, and (v) the timeliness of the preparation of revisions of standards. | **M.R. Serbyn** |

| WORKING GROUP | TITLE AND SCOPE | CHAIR |
|---|---|---|
| (b) S3/WG39 (S2) | Human Exposure to Mechanical Vibration and Shock (counterpart to ISO/TC 108/SC4) - Standardization in the field of shock, vibration and related biodynamic environments with regard to health, safety, performance and comfort criteria and guidelines regarding the effects of occupational and non-occupational exposures on the human population (environments of primary interest are: vibration, rotational oscillations, shock and impact transmitted to the whole-body or parts thereof). Preparation of standard terminology and characterization of the biodynamic properties of humans with and without support and restraint devices by means of biodynamic models or analogues is also included as a basis for the description of the physical, behavioral and physiological effects of the mechanical environments under consideration. | H.E. von Gierke |
| (c) S2/WG54 | Atmospheric Blast Effects - Source, propagation and effects of airblast waves. | J.W. Reed<br>J.H. Keefer<br>Vice Chair |
| (d) S2/WG63 | Vibration and Shock Isolators - Revision of ANSI S2.8-1972 Guide for Describing the Characteristics of Resilient Mountings. | H. Himelblau |
| (e) S2/WG65 | Balancing Technology (counterpart to ISO/TC 108/SC1 - Prepare standards on dynamic balancing and balancing machines, including related hardware, procedures and terminology, monitor existing standards, and suggest modifications where appropriate. | D.G. Stadelbauer |
| S2/WG65A | Rigid Rotor Balancing (counterpart to ISO/TC 108/SC1/WG8). | S. Feldman |
| S2/WG65B | Flexible Rotor Balancing (counterpart to ISO/TC 108/SC1/WG2 and ISO/TC 108/SC1/WG8). | D.G. Stadelbauer |
| S2/WG65C | Terminology (counterpart to ISO/TC 108/SC1/WG1). | D. Muster |
| S2/WG65D | Balancing Machines (counterpart to ISO/TC 108/SC1/WG3). | D.G. Stadelbauer |
| (f) S2/WG66 | Methods of Analyzing and Presenting Vibration and Shock Data - Acquisition, analysis, and presentation of shock and vibration data. | (vacant) |

| WORKING GROUP | TITLE AND SCOPE | CHAIR |
|---|---|---|
| (g) S2/WG67 | Measurement and Evaluation of Vibration and Shock in Land Vehicles (counterpart to ISO/TC 108/SC2/WG4) - Measurement, analysis and classification of vibration and shock with regard to all forms of land vehicles. This shall include vibration and shock sources, their transmission paths, and the end results. It shall include computer and laboratory simulations as well as the vehicle itself. | F. Chen |
| (h) S2/WG69 | Seismic Testing (counterpart to IEC/SC50A/WG8) - To produce a seismic test standard for electrical and communication equipment. | G.E. Heberlein |
| (i) S2/WG72 | Vibration Testing (counterpart to ISO/TC 108/WG4 and IEC/SC50A) - To develop standards for vibration testing equipment, including hydraulic testing equipment and auxiliary tables for generating vibration; to develop standards related to shock and vibration tests, and to interact with parallel ISO and IEC working groups. | L. Herstein<br>G. Booth, Vice Chair |
| (j) S2/WG73 | Characterization of Damping Materials (counterpart to ISO/TC 108/WG13) - Damping configuration in a structural system; nomenclature for specifying the damping properties of materials; and characterization of damping materials. | A. Kilcullen |
| (k) S2/WG74 | Measurement of Mechanical Mobility - Laboratory procedures, instrument calibration and evaluation necessary for making accurate mechanical mobility measurement. | P.K. Baade |
| (l) S2/WG76 | Measurement and Evaluation of Machinery Vibration (counterpart to ISO/TC 108/SC2/WG1 - Development of standards for the measurement and evaluation of mechanical vibration of general classes of machines. The characteristics of the machine, instrumentation, measurement and evaluation procedures shall be considered.<br><br>The evaluation of machine vibrations shall include acceptance testing, operational monitoring, and consideration of the structural integrity of the machine. Consideration will also be given to the effect of the environment on the machine and the machine on the environment. | P.H. Maedel |

| WORKING GROUP | TITLE AND SCOPE | CHAIR |
|---|---|---|
| (m) S2/WG77 | Measurement and Evaluation of Ship Vibration (counterpart to ISO/TC 108/SC2/WG2) - Establishing a basis for specifying evaluation standards for vibration in ships including measuring procedures. | A. Kilcullen |
| (n) S2/WG78 | Measurement and Evaluation of Structural Vibration (counterpart to ISO/TC 108/SC2/WG3) - Measurement and evaluation of all vibrations and shock response of stationary structures. Vibration and shock may be transmitted in the structure by the surrounding ground, the air, or generated within the structure itself. | D. Siskind |
| (o) S2/WG79 | Characterization of the Dynamic Mechanical Properties of Viscoelastic Polymers - Measurement procedures, instrument calibration, data processing algorithms, and data reporting formats for dynamic properties of viscoelastic polymers. Properties of interest include the complex shear, Young's, and bulk moduli; the Lame' constants, Poisson's ratio, and the frequency-temperature shift functions obtained through application of the time-temperature superposition principle. | W. Reader<br>W. Madigosky, Vice Chair |
| (p) S2/WG80 | Vibration and Shock Terminology (counterpart to ISO/TC 108/WG1) - Development of standard terminology in the area of mechanical vibration and shock. | D. Muster |
| (q) S2/WG81 | Use and Calibration of Vibration and Shock Measuring Instruments (counterpart to ISO/TC 108/SC3) - Standardization in the field of use and calibration of mechanical vibration and shock measuring instruments. | B. Douglas<br>M.R. Serbyn, Vice Chair |
| (r) S2/WG82 | Flexible Couplings - Provide guide for the selection and application of resilient shaft couplings. | (vacant) |
| (s) S2/WG83 | Acoustic Vibration Testing (counterpart to IEC/SC50A/WG11) - Response on international documents, including the revision of IEC/SC50A(Secretariat)199. | G. Getline |
| (t) S2/WG84 | Counterpart to IEC/SC50A/WG12 - Revision of the dynamic tests - bump, shock, etc. of IEC Publication 68 (Documents Ea, Eb, Ec, Ed and Ee). | (vacant) |
| (u) S2/WG85 | General Counterpart to IEC/SC50A - Standardization in the area of shock and vibration tests; U.S. response on international documents. | (vacant) |

| WORKING GROUP | TITLE AND SCOPE | CHAIR |
|---|---|---|
| (v) S2/WG86 | **Methods for Measuring and Reporting Vibration and Shock Resistance of Motion-Sensitive Equipment (counterpart to ISO/TC 108/WG16)** - Methods and standard format for measuring and reporting vibration and shock resistance of motion-sensitive equipment such as digital computers, electron microscopes, and their components. | R. Frey |
| (w) S2/WG87 | **Shock Testing Machines** - The development of standards for shock testing machines; interaction with parallel ISO standards. | R. Bowser |
| (x) S2/WG88 | **Measurement and Evaluation of Machine Tool Vibration** - Development of a standard for the measurement and evaluation of mechanical vibrations of machine tools and associated apparatus. The characteristics of the machines, instrumentation, measurement and evaluation procedures shall be considered and vibration level criteria for machine tool acceptance, established. The evaluation of vibration shall include acceptance testing and condition monitoring for maintenance. Consideration shall also be given to the effect of foundation and environment on the machine and the machine on the environment. | J.H. Pyne |

ATTACHMENT B-1
S2/222

STATUS REPORT

FIELD: STATUS: ACOUSTICS

COMMITTEE: S2

| DESIGNATION/ EDITION | SUBJECT OR TITLE | STATUS | ACTIVITY | METHOD | COMMENTS OR EXPECTED DATE OF SUBMISSION TO ANSI |
|---|---|---|---|---|---|
| S2.2-1959 (R 1990) | Calibration of Shock and Vibration Pick-ups, Methods for the Calibration of Shock and Vibration Pickups | UD;SP | 0 | S | |
| S2.3-1964 | High-Impact Shock Machines for Electronic Devices, Specifications for a High-Impact Shock Machine for Electronic Devices | UD | 0 | S | |
| S2.4-1976 (R 1990) | Specifying the Characteristics of Auxiliary Equipment for Shock and Vibration Measurements, Methods for (revision of S2.4-1982) (S2/WG72) | UD | 0 | S | |
| S2.5-1962 | Specifying the Performance of Vibrating Machines, Recommendation for Specifying the Performance of Vibration Machines | UD | 0 | S | |

STATUS

NS - NEW STD IN PROCESS
RF - REAFFIRMATION IN PROC.
RV - REVISION IN PROCESS
WD - WITHDRAWAL IN PROCESS
ES - ENVIRONMENTAL SOUND
SP - SUBMITTED PINS FORM
NR - NEEDS REVIEW
AP - ANSI APPROVED
OP - OUT OF PRINT
NA - NOT YET AVAIL.
UD - UP-TO-DATE

ACTIVITY

0-NONE
1-FORMATIVE STAGE
2-DRAFTING STANDARD
3-VOTING ON PROPOSAL
4-ANSI STANDARDS ACTION
5-OBJECTIONS BEING CONSIDERED
6-ANSI CONSIDERING APPROVAL

METHOD

C-ACCREDITED CANVASS
O-ACCREDITED ORGANIZATION
S-ACCREDITED STDS. COMMITTEE
X-NOT INTENDED FOR ANSI

# STATUS REPORT

FIELD: STATUS: ACOUSTICS

COMMITTEE: S2

| DESIGNATION/ EDITION | SUBJECT OR TITLE | STATUS | ACTIVITY | METHOD | COMMENTS OR EXPECTED DATE OF SUBMISSION TO ANSI |
|---|---|---|---|---|---|
| S2.6-1963 (R 1976) | Nomenclature and Symbols for Specifying the Mechanical Impedance of Structures (S2/WG74) | Withdrawn | | S | Superseded by S2.31-1979 (see below) |
| S2.7-1976 (R 1986) | Balancing Terminology (S2/WG65) | UD | | S | |
| S2.8-1972 (R 1986) | Resilient Mounting, Guide for Describing the Characteristics of (S2/WG63) | RV;ES | | S | |
| S2.9-1976 (R 1990) | Specifying Damping Properties of Materials, Nomenclature for (S2/WG73) | UD | | S | |
| S2.10-1971 (R 1990) | Analysis and presentation of Shock and Vibration Data, Methods for (S2/WG66) | UD | | S | |

STATUS

NS - NEW STD IN PROCESS
RF - REAFFIRMATION IN PROC.
RV - REVISION IN PROCESS
WD - WITHDRAWAL IN PROCESS
ES - ENVIRONMENTAL SOUND
SP - SUBMITTED PINS FORM
NR - NEEDS REVIEW
AP - ANSI APPROVED
OP - OUT OF PRINT
NA - NOT YET AVAIL.
UD - UP-TO-DATE

ACTIVITY

0-NONE
1-FORMATIVE STAGE
2-DRAFTING STANDARD
3-VOTING ON PROPOSAL
4-ANSI STANDARDS ACTION
5-OBJECTIONS BEING CONSIDERED
6-ANSI CONSIDERING APPROVAL

METHOD

C-ACCREDITED CANVASS
O-ACCREDITED ORGANIZATION
S-ACCREDITED STDS. COMMITTEE
X-NOT INTENDED FOR ANSI

# STATUS REPORT

FIELD: STATUS: ACOUSTICS

COMMITTEE: S2

| DESIGNATION/ EDITION | SUBJECT OR TITLE | STATUS | ACTIVITY | METHOD | COMMENTS OR EXPECTED DATE OF SUBMISSION TO ANSI |
|---|---|---|---|---|---|
| S2.11-1969 (R 1989) | Calibration and Tests for Electrical Transducers used for Measuring Shock and Vibration, Selection of (S2/WG81) | UD | | S | |
| S2.12 | Vibration Test for Electrical Equipment Components | NA | 0 | S | |
| S2.13 | Shock Test for Electronic Equipment Components | Status Unknown | 0 | S | |
| S2.14-1973 | Performance of Shock Machines, Methods for Specifying the (S2/WG87) | UD | | S | |

| STATUS | | ACTIVITY | | METHOD |
|---|---|---|---|---|
| NS - NEW STD IN PROCESS | NR - NEEDS REVIEW | 0-NONE | 4-ANSI STANDARDS ACTION | C-ACCREDITED CANVASS |
| RF - REAFFIRMATION IN PROC. | AP - ANSI APPROVED | 1-FORMATIVE STAGE | 5-OBJECTIONS BEING CONSIDERED | O-ACCREDITED ORGANIZATION |
| RV - REVISION IN PROCESS | OP - OUT OF PRINT | 2-DRAFTING STANDARD | 6-ANSI CONSIDERING APPROVAL | S-ACCREDITED STDS. COMMITTEE |
| WD - WITHDRAWAL IN PROCESS | NA - NOT YET AVAIL. | 3-VOTING ON PROPOSAL | | X-NOT INTENDED FOR ANSI |
| ES - ENVIRONMENTAL SOUND | UD - UP-TO-DATE | | | |
| SP - SUBMITTED PINS FORM | | | | |

# STATUS REPORT

FIELD: STATUS: ACOUSTICS

COMMITTEE: S2

| DESIGNATION/ EDITION | SUBJECT OR TITLE | STATUS | ACTIVITY | METHOD | COMMENTS OR EXPECTED DATE OF SUBMISSION TO ANSI |
|---|---|---|---|---|---|
| S2.15-1972 (R 1986) | Design, Construction and Operation of Class HI (high-impact) Shock Testing Machines, Specifications for (S2/WG87) | UD | | S | |
| S2.16 | Acoustic Environmental Testing for Equipment and Assemblies (formally S2/WG43 (S1)) | | 0 | S | Activities dropped in S2 |
| S2.17-1980 (R 1986) | Techniques of Machinery Vibration Measurement (S2/WG81) | UD | | S | |
| S2.18-199X | Mechanical Vibration of Machines with Operating Speeds from 10 to 200 revs-Basis for Specifying Evaluation Standards (counterpart to ISO 2372-1974) (S2/WG76) | NS;SP | 2 | S | Process of conversion; awaiting new text |

| STATUS | | ACTIVITY | | METHOD |
|---|---|---|---|---|
| NS - NEW STD IN PROCESS | NR - NEEDS REVIEW | 0-NONE | 4-ANSI STANDARDS ACTION | C-ACCREDITED CANVASS |
| RF - REAFFIRMATION IN PROC. | AP - ANSI APPROVED | 1-FORMATIVE STAGE | 5-OBJECTIONS BEING CONSIDERED | O-ACCREDITED ORGANIZATION |
| RV - REVISION IN PROCESS | OP - OUT OF PRINT | 2-DRAFTING STANDARD | 6-ANSI CONSIDERING APPROVAL | S-ACCREDITED STDS. COMMITTEE |
| WD - WITHDRAWAL IN PROCESS | NA - NOT YET AVAIL. | 3-VOTING ON PROPOSAL | | X-NOT INTENDED FOR ANSI |
| ES - ENVIRONMENTAL SOUND | UD - UP-TO-DATE | | | |
| SP - SUBMITTED PINS FORM | | | | |

# STATUS REPORT

FIELD: STATUS: ACOUSTICS

COMMITTEE: S2

| DESIGNATION/ EDITION | SUBJECT OR TITLE | STATUS | ACTIVITY | METHOD | COMMENTS OR EXPECTED DATE OF SUBMISSION TO ANSI |
|---|---|---|---|---|---|
| S2.19-1989 | Balance Quality of Rigid Rotors (S2/WG65) | RV;SP | | S | |
| S2.20-1983 | Estimating Airblast Characteristics for Single Point Explosions in Air, with a Guide to Evaluation of Atmospheric Propagation and Effects (S2/WG54) | AP | | S | |
| *Z24.21-1957 (R 1989) | Pick-ups for Shock and Vibration Measurements, Methods for Specifying the Characteristics of (S2/WG81) | UD | | S | |
| S2.31-1979 (R 1986) | Measurement of Mechanical Mobility; Part 1 (Supersedes S2.6-1963) (S2/WG74) | UD | | S | |

*S2 designation will be given upon revision

STATUS

NS - NEW STD IN PROCESS
RF - REAFFIRMATION IN PROC.
RV - REVISION IN PROCESS
WD - WITHDRAWAL IN PROCESS
ES - ENVIRONMENTAL SOUND
SP - SUBMITTED PINS FORM
NR - NEEDS REVIEW
AP - ANSI APPROVED
OP - OUT OF PRINT
NA - NOT YET AVAIL.
UD - UP-TO-DATE

ACTIVITY

0-NONE
1-FORMATIVE STAGE
2-DRAFTING STANDARD
3-VOTING ON PROPOSAL
4-ANSI STANDARDS ACTION
5-OBJECTIONS BEING CONSIDERED
6-ANSI CONSIDERING APPROVAL

METHOD

C-ACCREDITED CANVASS
O-ACCREDITED ORGANIZATION
S-ACCREDITED STDS. COMMITTEE
X-NOT INTENDED FOR ANSI

# STATUS REPORT

FIELD: STATUS: ACOUSTICS

COMMITTEE: S2

| DESIGNATION/ EDITION | SUBJECT OR TITLE | STATUS | ACTIVITY | METHOD | COMMENTS OR EXPECTED DATE OF SUBMISSION TO ANSI |
|---|---|---|---|---|---|
| S2.32-1982 (R 1990) | Methods for the Experimental Determination of Mechanical Mobility Part II: Measurements Using Single-Point Translational Excitation (S2/WG74) | UD | | S | |
| S2.33 | Measurement of Mechanical Mobility Part III: Covering mobility measurements using steady-state rotational excitation at a single point. Primarily intended for rotor torsional resonance predictions (CD 7626-III) (S2/WG74) | SP | | S | |
| S2.34-1984 (R 1990) | ANSI Guide to the Experimental Determination of Rotational Mobility Properties and the Complete Mobility Matrix, Part IV (DP 7626-IV) (S2/WG74) | | SP | S | |

| STATUS | | ACTIVITY | | METHOD |
|---|---|---|---|---|
| NS - NEW STD IN PROCESS | NR - NEEDS REVIEW | 0-NONE | 4-ANSI STANDARDS ACTION | C-ACCREDITED CANVASS |
| RF - REAFFIRMATION IN PROC. | AP - ANSI APPROVED | 1-FORMATIVE STAGE | 5-OBJECTIONS BEING CONSIDERED | O-ACCREDITED ORGANIZATION |
| RV - REVISION IN PROCESS | OP - OUT OF PRINT | 2-DRAFTING STANDARD | 6-ANSI CONSIDERING APPROVAL | S-ACCREDITED STDS. COMMITTEE |
| WD - WITHDRAWAL IN PROCESS | NA - NOT YET AVAIL. | 3-VOTING ON PROPOSAL | | X-NOT INTENDED FOR ANSI |
| ES - ENVIRONMENTAL SOUND | UD - UP-TO-DATE | | | |
| SP - SUBMITTED PINS FORM | | | | |

# STATUS REPORT

FIELD: STATUS: ACOUSTICS

COMMITTEE: S2

| DESIGNATION/ EDITION | SUBJECT OR TITLE | STATUS | ACTIVITY | METHOD | COMMENTS OR EXPECTED DATE OF SUBMISSION TO ANSI |
|---|---|---|---|---|---|
| S2.35 | Measurement of Mechanical Mobility Part V: Covering mobility measurement using impact excitation and other forcing functions which use the same Fourier transform techniques for data reduction (SP 7626-V) (S2/WG74) | SP | | S | |
| S2.36 | Measurement of Mechanical Mobility Part VI (CD 7626) (S2/WG74) | SP | | S | |
| S2.37 | Vibration and Shock - Vocabulary, Bilingual Edition ISO 2041-1975 (S2/WG80) | NS;SP | 1 | S | |
| S2.38-1982 (R 1990) | Field Balancing Equipment-Description and Evaluation (counterpart to ISO 2371-1974) (S2/WG65) | UD | | S | |

STATUS

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WD - WITHDRAWAL IN PROCESS
ES - ENVIRONMENTAL SOUND
SP - SUBMITTED PINS FORM
NR - NEEDS REVIEW
AP - ANSI APPROVED
OP - OUT OF PRINT
NA - NOT YET AVAIL.
UD - UP-TO-DATE

ACTIVITY

0-NONE
1-FORMATIVE STAGE
2-DRAFTING STANDARD
3-VOTING ON PROPOSAL
4-ANSI STANDARDS ACTION
5-OBJECTIONS BEING CONSIDERED
6-ANSI CONSIDERING APPROVAL

METHOD

C-ACCREDITED CANVASS
O-ACCREDITED ORGANIZATION
S-ACCREDITED STDS. COMMITTEE
X-NOT INTENDED FOR ANSI

# STATUS REPORT

FIELD: STATUS: ACOUSTICS

COMMITTEE: S2

| DESIGNATION/ EDITION | SUBJECT OR TITLE | STATUS | ACTIVITY | METHOD | COMMENTS OR EXPECTED DATE OF SUBMISSION TO ANSI |
|---|---|---|---|---|---|
| S2.39 | Balancing Machines-Description and Evaluation (counterpart to ISO 2953-1975) (S2/WG65) | NS;SP | 2 | S | Awaiting rev. text procedure; to be balloted |
| S2.40-1984 (R 1990) | Mechanical Vibration of Rotating and Reciprocating Machinery-Requirements for Instruments for Measurement Vibration Severity (counterpart to ISO 2954-1975) | UD | | S | |
| S2.41-1985 (R 1990) | Mechanical Vibration of Large Rotating Machines with Speed Ranging from 10 to 200 revs-Measurement and Evaluation of Vibration Severity in situ (counterpart to ISO 3945-1977) (S2/WG76) | UD | | S | |
| S2.42-1982 (R 1990) | Procedures for Balancing Flexible Rotors (counterpart to ISO 5406) (S2/WG65) | UD | | S | |

STATUS

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SP - SUBMITTED PINS FORM
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ACTIVITY

0-NONE
1-FORMATIVE STAGE
2-DRAFTING STANDARD
3-VOTING ON PROPOSAL
4-ANSI STANDARDS ACTION
5-OBJECTIONS BEING CONSIDERED
6-ANSI CONSIDERING APPROVAL

METHOD

C-ACCREDITED CANVASS
O-ACCREDITED ORGANIZATION
S-ACCREDITED STDS. COMMITTEE
X-NOT INTENDED FOR ANSI

# STATUS REPORT

FIELD: STATUS: ACOUSTICS

COMMITTEE: S2

| DESIGNATION/ EDITION | SUBJECT OR TITLE | STATUS | ACTIVITY | METHOD | COMMENTS OR EXPECTED DATE OF SUBMISSION TO ANSI |
|---|---|---|---|---|---|
| S2.44-199X | Measurement and Evaluation of Mechanical Vibration of Machines with Services Speeds from 600-12,000 r.p.m. as Measured on Shafts (ISO/TC 108/SC2/WG1 N 22) (S2/WG76) | SP | 2 | S | |
| S2.45-1983 (R 1990) | Electrodynamic Test Equipment for Generating Vibration, *Methods of Describing the Characteristics of the* Equipment (counterpart to ISO 5344-1980) (S2/WG72) | UD | | S | |
| S2.46-1989 | Characteristics to be specified for Seismic Transducers (counterpart to ISO 8042-1989) (S2/WG81) | UD | | S | |
| S2.47-1990 | Vibration of Buildings - Guidelines for the Measurement of Vibration and Evaluation of Their Effects on Buildings (S2/WG78) | AP;NA | 4 | S | |

STATUS

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NR - NEEDS REVIEW
AP - ANSI APPROVED
OP - OUT OF PRINT
NA - NOT YET AVAIL.
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ACTIVITY

0-NONE
1-FORMATIVE STAGE
2-DRAFTING STANDARD
3-VOTING ON PROPOSAL
4-ANSI STANDARDS ACTION
5-OBJECTIONS BEING CONSIDERED
6-ANSI CONSIDERING APPROVAL

METHOD

C-ACCREDITED CANVASS
O-ACCREDITED ORGANIZATION
S-ACCREDITED STDS. COMMITTEE
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# STATUS REPORT

FIELD: STATUS: ACOUSTICS

COMMITTEE: S2

| DESIGNATION/ EDITION | SUBJECT OR TITLE | STATUS | ACTIVITY | METHOD | COMMENTS OR EXPECTED DATE OF SUBMISSION TO ANSI |
|---|---|---|---|---|---|
| S2.XX | ISO 4867-1984 Code for the Measurement and Reporting of Shipboard Vibration Data (S2/WG77) | | 2 | S | |
| S2.XX | ISO 4868-1984 Code for the Measurement and Reporting of Local Vibration Data of Ship Structures and Equipment (S2/WG77) | | 2 | S | |
| S2.XX | ISO/DIS 5347 Method for the Calibration of Vibration and Shock Pick-ups (S2/WG81) | | 2 | S | |
| S2.57 | ISO 3719 Balancing Machines - Symbols for front Panels - Trilingual Edition (S2/WG65) | SP | | S | |
| S2.58-1982 (R 1990) | ISO 6070-1981 Auxiliary Tables for Vibration Generators-Methods of Describing Equipment Characteristics (S2/WG72) | UD | | S | |

| STATUS | | ACTIVITY | | METHOD |
|---|---|---|---|---|
| NS - NEW STD IN PROCESS | NR - NEEDS REVIEW | 0-NONE | 4-ANSI STANDARDS ACTION | C-ACCREDITED CANVASS |
| RF - REAFFIRMATION IN PROC. | AP - ANSI APPROVED | 1-FORMATIVE STAGE | 5-OBJECTIONS BEING CONSIDERED | O-ACCREDITED ORGANIZATION |
| RV - REVISION IN PROCESS | OP - OUT OF PRINT | 2-DRAFTING STANDARD | 6-ANSI CONSIDERING APPROVAL | S-ACCREDITED STDS. COMMITTEE |
| WD - WITHDRAWAL IN PROCESS | NA - NOT YET AVAIL. | 3-VOTING ON PROPOSAL | | X-NOT INTENDED FOR ANSI |
| ES - ENVIRONMENTAL SOUND | UD - UP-TO-DATE | | | |
| SP - SUBMITTED PINS FORM | | | | |

# STATUS REPORT

FIELD: STATUS: ACOUSTICS

COMMITTEE: S2

| DESIGNATION/ EDITION | SUBJECT OR TITLE | STATUS | ACTIVITY | METHOD | COMMENTS OR EXPECTED DATE OF SUBMISSION TO ANSI |
|---|---|---|---|---|---|
| S2.55 | ISO 5348 Mechanical Mounting of Accelerometers (Seismic Pick-ups) (S2/WG81) | | 2 | S | |
| S2.60-1987 | Counterpart to ISO 7475-Balancing Machines-Enclosures and Other Safety Measures (S2/WG65) | UD | | S | |
| S2.61-1989 | Guide to the Mechanical Mounting of Accelerometers (S2/WG81) | UD | | S | |
| S9.1-1975 | ANSI Standard Guide for the Selection of Mechanical Devices Used in Monitoring Acceleration Induced by Shock (ASME Standard) | RV | 1 | S | |

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NR - NEEDS REVIEW
AP - ANSI APPROVED
OP - OUT OF PRINT
NA - NOT YET AVAIL.
UD - UP-TO-DATE

**ACTIVITY**

0-NONE
1-FORMATIVE STAGE
2-DRAFTING STANDARD
3-VOTING ON PROPOSAL
4-ANSI STANDARDS ACTION
5-OBJECTIONS BEING CONSIDERED
6-ANSI CONSIDERING APPROVAL

**METHOD**

C-ACCREDITED CANVASS
O-ACCREDITED ORGANIZATION
S-ACCREDITED STDS. COMMITTEE
X-NOT INTENDED FOR ANSI

# STATUS REPORT

FIELD: STATUS: ACOUSTICS

COMMITTEE: S2

| DESIGNATION/ EDITION | SUBJECT OR TITLE | STATUS | ACTIVITY | METHOD | COMMENTS OR EXPECTED DATE OF SUBMISSION TO ANSI |
|---|---|---|---|---|---|
| S2.XX | Specifying the Performance of Shock Tests on Digitally Controlled Vibration Machines Using Shock Spectra and Related Criteria | | NA | 0 | S |
| S2.XX | Digital Methods for Analysis and Presentation of Vibration and Shock Data (S2/WG66) | | NA | 2 | S |
| S2.XX | Specification for Digital Analyzers in Conjunction with Shock and Vibration Measurement (S2/WG66) | | NA | 2 | S |
| S2.XX | Graphical Presentation of Damping Material Complex Modulus (S2/WG73) | | NA;ES | 2 | S |
| S2.XX | Flexible Couplings (S2/WG82) | | NS;NA | 0 | S |

**STATUS**

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**ACTIVITY**

0-NONE
1-FORMATIVE STAGE
2-DRAFTING STANDARD
3-VOTING ON PROPOSAL
4-ANSI STANDARDS ACTION
5-OBJECTIONS BEING CONSIDERED
6-ANSI CONSIDERING APPROVAL

**METHOD**

C-ACCREDITED CANVASS
O-ACCREDITED ORGANIZATION
S-ACCREDITED STDS. COMMITTEE
X-NOT INTENDED FOR ANSI

S2/222
ATTACHMENT C-1

D.E. WASSERMAN
7910 MITCHELL FM.LN.
CINCINNATI, OHIO 45242
(513) 891-9084

To: Tony Brammer, Ph.D
Martin Cherniack, M.D.
Hester Hursh, M.D.
Peter Pelmear, M.D.

December 6, 1990

Dear Colleagues,

Thanks to each of you for agreeing to become a member of this ANSI Ad Hoc Committee on Hand-Arm Vibration. As you know Dr. Henning Von Gierke, Chairman, of ANSI S3.39 has asked me at our San Diego meeting of last week to form this Ad Hoc Committee on Hand-Arm Vibration. Because this is an ANSI issue, we have limited this group to include those in North America who are knowledgeable in this area. Dr. VonGierke's stated purpose of this committee is to advise him as to the need or lack of need to modify the existing weighting curves used in ANSI S3.34 Hand-Arm Vibration Standard issued in 1986. We therefore have been asked to expediciously seek out and gather any and all available (published, in press, and-with permission-unpublished) medical and epidemiologic data and studies which can help shed light on this important issue. As a first step, I am asking each of you to please send me at the above address and no later than March 15, 1991: a) A hard copy of each relevant study if available, b) Reference(s) to said studies as appropriate if hard copy is not available. c) Any other relevant data. Please do NOT send me a copy of the NIOSH standard as I already have a copy. I will also be gathering these data myself.

Second, after March 15, upon receiving these data from you and gathering studies myself, I will prepare and mail copies of these studies to each of you as well and myself. Third, I will ask each committee member to carefully review these documents seeking your written comments. Fourth, I will prepare a DRAFT written report to the Chairman based upon all our comments and recommendations and send the draft to each committee member for final comments and consensus. Upon receipt of the final comments, I will then prepare and distribute to each committee member a final report and send our recommendations to the Chairman. It may be necessary to issue both a majority and minority report to the Chairman if we cannot reach a consensus on our recommendations.

I am open to suggestions at any time during this process. Thank you in advance for your assistance and I look forward to receiving your references and/or papers on HAV weighting.

Sincerely,

D.E. Wasserman

cc H. VonGierke
A.Brenig

# ANSI Ad Hoc Committee on Hand-Arm Vibration

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S2/222
ATTACHMENT D

D.E. WASSERMAN
7910 MITCHELL FM. LN.
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9513) 891-9084

H. E. VONGIERKE
1325 MEADOW LANE
YELLOW SPRINGS, OHIO 45387

March 12, 1991

Dear Henning,

Persuant to our discussion at the last ASA meeting in San Diego I will be unable to attend the upcoming ASA Baltimore meeting since I have a prior contractual commitment to teach a course on human vibration in San Francisco on the same day as the S3.39 meeting. I expect to attend the following ASA meeting.

With reference to the ad hoc committee on hand-arm vibration I have assembled a committee consisting of P. Pelmear, M.D., Hester Hursh, M.D., Martin Cherniack, M.D., Tony Brammer, Ph.D. and myself. We are in the process of obtaining relevant papers on this issue of weighted vs. unweighted HAV curves. I had expected to send each committee member copies of said papers shortly, but Tony has requested that I not do so until he can send me his latest paper on this subject due sometime this month. Once this is received, I will next assemble and mail copies of same to the committee and yourself for review.

All the best.

Sincerely,

Don Wasserman

cc: [redacted]

# M I N U T E S

## ANSI S2-65 MEETING NO. 25

NYC, March 18, 1991

Present: John N. Eustis, Department of Energy
Sam Feldman, NKF Engineering
Louis F. Hackstie, Westinghouse
Chuck Jenkins, Bently Nevada
Allan K. Kukk, NAVSEA
Ramesh K. Mehta, Textron Lycoming
Ducan N. Walker, GE Schenectady
Douglas G. Stadelbauer, Stadelbauer Consulting

The meeting was called to order at 10:00 a.m. by the Chairman, Doug Stadelbauer. It was noted that the minutes of the prior meeting of January 21, 1991 had been distributed. The agenda for the present meeting was accepted. The meeting then proceeded as follows:

1. ISO/TC108/SC1/WG6/N37 - 3rd COMPLETE DRAFT OF 5343/5406

This documentation was reviewed in its entirety, with Ducan Walker taking the notes up to page 35, Doug Stadelbauer thereafter. He will fax a copy thereof to DNW by March 30, 1991.

A significant problem was discovered in the classification and distinguishing characteristics of class 2c, 2f, 2g, and 2h rotors. DGS is to draft a suggested modification and fax to DNW by March 30.

Sam Feldman will draft a new paragraph 5A on Support Structure Resonances and fax to DNW by March 30.

DGS will discuss Annex F at Schenck Trebel and fax comments to DNW.

DNW will combine his notes with faxed notes and comments and submit to WG6 as US comments to N37. He is also asked hereby to request additional information on how to obtain $K_2$ (p. 30 and 31).

2. SUSCEPTIBILITY TO UNBALANCE (WG2)

Time did not permit discussion of N98 recently distributed by DNW. Comments on this document are to be faxed to him by March 23, 1991. He will combine these and fax to Giers as US comments on N98 by March 26.

3. ISO 1925/BALANCING TERMINOLOGY (WG1)

Time did not permit discussion. The status remains as per minutes of Meeting No. 24.

4. ISO 2371/CAPABILITY OF PORTABLE...INSTRUMENTS (WG4)

Time did not permit discussion. SC3 has turned down the request for drafting the remaining part of the test procedure. Another source is being sought. John Csokmay was asked to incorporate the corrections and additions made in NI2 at the Milan meeting and issue a revised document N17 for distribution to WG4 prior to the Kobe meeting.

5. Next Meetings

May 20, 1991, 10 AM at ANSI, New York City
July 22, 1991, 10 AM at ANSI, New York City

Enclosures: None

P.S. We missed those of you who did not attend the meeting and hope you will be able to do so on May 20, 1991.

# S2/WG72 Working Group

## Meeting Report

The working group met on 1 May in Baltimore and agreed on the following:

a. Formal preparation of the draft ANSI version of ISO 8626 will start in about one month, following further review by the working group.

b. It is believed that several of the items proposed for future work, resolution 15, from S2/210 should more properly be under cognizance of other working groups, such as S2/WG 87 for item 2.

c. It was suggested that participation be solicited through some other organizations, such as IES, who have a large number of people concerned with vibrations.

Z. Herstein
Chair

ATTACHMENT G-1
S2/222

**ISO/TC 108 MECHANICAL VIBRATION AND SHOCK**
**(and SUBCOMMITTEES SC1, SC2, SC3 and SC4)**

Documents processed by the ASA Standards Secretariat from October 1990 through May 1991

THE FOLLOWING DOCUMENTS WERE RECEIVED FOR VOTE AND/OR COMMENT BY THE U.S. MEMBER BODY:

**DRAFT INTERNATIONAL STANDARDS (DIS)**

| TAG | DOCUMENT |
|---|---|

Document(s) received for VOTE and COMMENT by the U.S. Member Body:

S2 — ISO/DIS 7626-5 Vibration and shock - Experimental determination of mechanical mobility - Part 5: Measurements using impact excitation with an exciter which is not attached to the structure

Announced to S2 (S2/221) on 26 March 1991 with P.K. Baade coordinating comments and recommendations for vote on this document. The U.S. position which was negative with comments, was submitted to ANSI on 21 May 1991 and transmitted to ISO by ANSI on 23 May 1991.

**COMMITTEE DRAFTS (CD)**

S2 — ISO/CD 10055 Second ISO/CD 10 055 - Mechanical vibration - Standard for vibration testing of shipboard equipment and machinery components

Announced to S2 (S2/211) on 1 November 1990 with A. Kilcullen coordinating comments and recommendations for vote on this document. The U.S. position which was affirmative with comments, was submitted to ANSI on 12 December 1990 and transmitted to ISO by ANSI on 17 December 1990.

S2, S3 — ISO/CD 6954 Mechanical vibration - Evaluation of multifrequency mechanical vibration in the living and working area on ships and floating structures

Announced to S2 and S3 (S2/212) on 1 November 1990 with A. Kilcullen coordinating comments and recommendations for vote on this document. The U.S. position which was negative with comments, was submitted to ANSI on 12 December 1990 and transmitted to ISO by ANSI on 17 December 1990.

## ISO/TC 108 MECHANICAL VIBRATION AND SHOCK (and SUBCOMMITTEES SC1, SC2, SC3 and SC4)

Documents processed by the ASA Standards Secretariat from October 1990 through May 1991 (continued)

THE FOLLOWING DOCUMENTS WERE RECEIVED FOR VOTE AND/OR COMMENT BY THE U.S. MEMBER BODY:

### COMMITTEE DRAFTS (CD) (continued)

| TAG | DOCUMENT |
|---|---|
| S2 | ISO/CD 10815 Mechanical vibration - Methods for measurement of vibrations generated internally in railway tunnels<br><br>Announced to S2 (S2/220) on 15 March 1991 with M.R. Serbyn coordinating comments and recommendations for vote on this document. |
| S2 | ISO/CD 10816-2 First CD on Mechanical vibration measurements on non-rotating parts and evaluation Part 2: Guidelines for large land-based steam turbine-generator sets in excess of 50 MW<br><br>Announced to S2 (S2/223) on 8 April 1991 with P.H. Maedel coordinating comments and recommendations for vote on this document. The U.S. position which was affirmative without comments, was submitted to ANSI on 30 May 1991. |

### LIAISON DOCUMENTS

| TAG | DOCUMENT |
|---|---|
| S2 | Liaison Document No. N 1 - ISO/TC 118/SC31/WG3 N 88 - Minutes from the meeting of ISO/TC 188/SC3/WG3 Vibrations in handheld tools, 4-5 October 1990 at Inrs, Nancy, France |

**ISO/TC 108 MECHANICAL VIBRATION AND SHOCK**
**(and SUBCOMMITTEES SC1, SC2, SC3 and SC4)**

**Other Actions:**

1. Review of Various ISO/TC 108 Standards:

   ISO 7626-1:1986 Vibration and shock - Experimental determination of mechanical mobility - Part 1: Basic definitions and transducers

   ISO 7919-1:1986 Mechanical vibration of non-reciprocating machines - Measurements of rotating shafts and evaluation - Part 1: General guidelines

   ISO 8002:1986 Mechanical vibrations - Land vehicles - Methods for reporting measured data

   ISO 5349:1986 Mechanical vibration - Guidelines for the measurement and the assessment of human exposure to hand-transmitted vibration

   This list of standards has been submitted to the respective Technical Advisors for each technical area. Responses were due to ISO by 28 February 1991.

2. On 18 January 1991, redrawn, original figures for ISO 10112 Damping Materials - Graphical Presentation of the Complex Module were submitted to ISO in order to publish this ISO Standard.

3. New Work Items:

   a) Proposal for ISO/TC 108 - A proposal from the U.K. was submitted to DIN, Secretariat for ISO/TC 108/SC4 (28 June 1990, N 197) on the Safety aspects of experiments in which people are exposed to mechanical vibration and shock. The U.S. Technical Advisory Group for ISO/TC 108/SC4 represented by working group S3/WG39 (S2) has voted in favor of this new work item proposed for ISO/TC 108/SC4. This vote was submitted to ANSI on 28 February 1991.

   b) Proposal for ISO/TC 108 - A proposal was submitted to DIN, Secretariat for ISO/TC 108/SC4 (13 February 1991, N 198) on the Measurement and Interpretation of Vibrotactile Perception Thresholds. The U.S. Technical Advisory Group for ISO/TC 108/SC4 represented by working group S3/WG39 (S2) has voted in favor of this new work item proposed for ISO/TC 108/SC4. This vote was submitted to ANSI on 28 February 1991.

**ISO/TC 108 MECHANICAL VIBRATION AND SHOCK**
**(and SUBCOMMITTEES SC1, SC2, SC3 and SC4)**

Other Actions: (continued)

3. New Work Items: (continued)

   c) Proposal for ISO/TC 108 - A proposal was received from DIN, Secretariat for ISO/TC 108/SC4 via ANSI on 15 March 1991. This proposal states the following: ISO/CD 6954 Mechanical vibration - Evaluation of multifrequency mechanical vibration in the living and working area on ships and floating structures - had been circulated to ISO/TC 108/SC2 and ISO/TC 108/SC4. In light of the negative comments received, the SC2/SC4 Secretariat will pass comments to the ISO/TC 108 Secretariat with the recommendation that ISO/TC 108 take the document under its jurisdiction and form a new ISO/TC 108 Working Group to handle this document.

4. New Working Group(s):

   a) A new working group on Vibration Condition Monitoring - ISO/TC 108/WG17 has been established with Mr. Douglas Muster appointed Project Leader for this working group. The first meeting of ISO/TC 108/WG17 was held on 14 March 1991, in Houston, Texas, following a meeting on standardization and condition monitoring, Standardization and Condition Monitoring Workshop (SCMW-91), which took place from 11 to 13 March 1991, also in Houston, Texas.

   b) A new working group on Modal Analysis - ISO/TC 108/WG18 has been established with Mr. Douglas Muster appointed Project Leader for this working group. The first meeting of ISO/TC 108/WG18 will be held on Monday, 10 June 1991, at the British Standards Institution Conference Centre, Hampden House, London, United Kingdom. The meeting was initially scheduled to take place in conjunction with the International Modal Analysis Conference which was to take place from 14-18 April 1991 in Florence, Italy, but which was canceled.

5. New Steering Committee established - A new ISO/TC 108 Steering Committee on Emerging Technological Needs was established with Mr. Douglas Muster as Project Leader.

6. New ISO/TC 108 Steering Committee established - A new ISO/TC 108 Steering Committee for Vibration Generating Systems (SCVG) was established to assist the Secretariat of ISO/TC 108 in organizing and monitoring the ongoing and future work in this area.

**ISO/TC 108 MECHANICAL VIBRATION AND SHOCK**
**(and SUBCOMMITTEES SC1, SC2, SC3 and SC4)**

Other Actions: (continued)

7. A new Technical Committee under CEN - CEN/TC 231 - Vibration, was officially established in March 1990. The Secretariat of this committee has been allocated to the German Standards organization, DIN, and its first meeting was held from 1 to 3 October 1990, in Nancy, France. Reports of this initial meeting are available from the Standards Secretariat.

8. Liaison between IEC/SC50A and ISO/TC 108/WG4 - For the IEC/SC50A meeting held on 29 and 30 October 1990 in Osaka, Japan. ISO/TC 108 submitted two resolutions on which it requested action to be taken by IEC/SC50A. (See previous S2 Minutes, S2/210 for details.)

   A report from Mr. G.B. Robinson, Secretary to IEC/SC 50A, on the actions taken at the IEC/SC50A meeting based on the request of ISO/TC108 (at the Milan meeting in April 1990) is attached (see **ATTACHMENT U**).

9. Eighteenth Plenary meeting of ISO/TC 108, together with Subcommittees 1 and 2 and respective working groups, to take place in Kobe, Japan, from 4 to 13 September 1991

   Announcement of this meeting together with registration materials and a Draft Program (ISO/TC 108 N 534) were circulated to P and O Members of ISO/TC 108 (including the U.S. TAG) on 15 November 1990.

RESOLUTION No 6 - ACTION BY ISO/TC 108/SC2 AND ISO/TC 108 SC4 ON ISO 6954-1984

TC 108 recognizes the action of TC 108/SC 2 on the revision of ISO 6954-1984 in regard to the solution agreed upon at the China Meeting between TC 108/SC 2 and TC 108/SC 4. TC 108 requests the Secretariats of TC 108/SC 2 and TC 108/SC 4 to circulate the Committee Draft to the members of both Subcommittes with the request to encourage responses with similar votes and comments from each country.

RESOLUTION No 7 - Scope of ISO/TC 108/WG 4 - Vibration Generating Systems

TC 108 agrees that the scope of TC 108/WG 4 be revised to read:

"To develop international standards related to vibration generators and their ancillary equipment used to conduct tests".

RESOLUTION No 8 - TC 108 to establish the Steering Committee for Vibration Generating Systems (SCVG)

TC 108 agrees to establish a Steering Committee for Vibration Generating Systems (SCVG) to be formed to assist the Secretariat in organizing and monitoring the ongoing and future work in this area. The charge to the SCVG includes reviewing proposed work items and preparing a plan for administering the work of ISO/TC 108 related to the vibration testing of machines, vehicles and structures by means of vibration generators, such as electrodynamic and servohydraulic shakers. This plan shall take into account (by liaison) work being performed by IEC/SC 50A with the aim of achieving harmonization.

RESOLUTION No 9 - Request to IEC/SC 50A for reciprocal resolutions

ISO/TC 108 agrees that IEC/SC 50A should be informed of Resolutions Nos. 7 and 8 immediately in order that it can consider preparing reciprocal resolutions at its next meeting, to take place in Tokyo, Japan, in October 1990.

RESOLUTION No 10 - New Work Item on vibration - Condition Monitoring

ISO/TC 108 agrees to process new work item on vibration condition monitoring when a scope and rationale have been furnished to the TC 108 Secretariat. If approved, the new work item will be handled by a new working group, ISO/TC108/WG17, under Project Leader Mr. Douglas Muster.

**ANNEX H**

At the ISO/TC 108/WG 4 meeting in Milan on 26 and 27 March 1990, Resolutions 7 and 8 were passed, see below, which defined the scope of its work, mentioned liaison with IEC/SC 50A and, in Resolution 9, asked for reciprocal resolutions.

Resolution 7 : To develop international standards related to vibration generators and their ancillary equipment used to conduct tests.

Resolution 8 : TC 108 agrees to establish a Steering Committee for Vibration Generating Systems (SCVG) to be formed to assist the Secretariat in organizing and monitoring the ongoing and future work in this area. The charge to the SCVG includes reviewing proposed work items and preparing a plan for administering the work of ISO/TC 108 related to the vibration testing of machines, vehicles and structures by means of vibration generators, such as electrodynamic and servohydraulic shakers. This plan shall take into account (by liaison) work being performed by IEC/SC 50A with the aim of achieving harmonization.

Resolution 9 : ISO/TC 108 agrees that IEC/SC 50A should be informed of Resolutions 7 and 8 immediately in order that it can consider preparing reciprocal resolutions at its next meeting, to take place in Japan, in October 1990.

At the IEC/SC 50A meeting in Osaka on 29 October 1990, Resolutions 7 and 8 were welcomed and the response to Resolution 9 is contained herein. The scope of IEC/SC 50 work is:

> To prepare standards for environmental testing procedures with the exception of those related to electromagnetic compatibility intended for the preparation of product specifications.

This has been interpreted for SC 50A to be responsible for the preparation and maintenance of standards for test methods and guidance in allocated areas, currently those of 'impact' (family 'E'), 'vibration' (family 'F') and 'acceleration' (family 'G'), and for the corresponding test summaries for specification writers.

It can be seen by comparison with that of ISO/TC 108/WG 4 Resolution 8 that the potential for a conflict of interests does exist as long as the term 'vibration testing' appears in both scopes. It is hoped that by close liaison between the two bodies each will be aware of the other's plans so that duplication or contradictory standards can be avoided.

Skills and resources are too rare for them to be expended in performing tasks simultaneously in both committees.

IEC/SC 50A is pleased to nominate as liaison member:

Mr Maurizio Zola
ISMES
Via Levata
24068 SERIATE BG
ITALY

Tel: +39 35 287 308
Fax: +39 35 287 410

Until a liaison member is appointed by ISO/TC 108/WG 4 correspondence will be sent to Dr A Brenig, the Secretary of ISO/TC 108.

**NOTE.** The liaison member was nominated subsequent to the meeting.

---

Reproduced in Switzerland
Central Office of the IEC
3, rue de Varembé
GENEVA

ATTACHMENT I
S2/222

# REPORT S2/WG76

S2/WG76 sent six delegates to the ISO/TC 108/SC1/WG1 meeting in Toronto, Canada on 4 and 5 October 1990.

Work has started on drafts of ASA counterpart for ISO 7919, Part 1 and ISO 2372, Part 1. It is expected that these documents will be ready for submission to S Committee for ballot before 30 June 1991.

It also is expected that work will start soon on the ASA counterpart of ISO 7919, Parts 2, 3 and 4. This document should be submitted to S Committee for ballot before the end of 1991.

S2/WG76 is working on several ISO Standards, including:

1. Preparation of U.S.A./Canadian draft of ISO 2372, Part 2

2. Preparation of U.S.A. draft of ISO 2372, Part 4

3. Preparation of U.S.A. draft on machinery Vibration Condition Monitoring

4. ISO Committee draft of:

    (a) ISO 7919, Part 3
    (b) ISO 7919, Part 5
    (c) ISO/TC 108/SC2/WG5/N-46, Reciprocating Machinery Vibration

Because of the above heavy load, S2/WG76 will continue to meet every two months.

P.H. Maedel, Jr.

S2/222
ATTACHMENT J-1

DEPARTMENT OF THE NAVY
NAVAL SHIP SYSTEMS ENGINEERING STATION
PHILADELPHIA, PA 19112-5083

IN REPLY REFER TO.
Code 101D4
Ser 91-062

22 March 91

From: Werner Strobel

To: Members of ANSI S2-76

Subj: SCMW-91 AND ISO TC108/WG17 MEETING

Dear Colleague:

Over the week of 11 to 15 March 91, I attended the Standardization and Condition Monitoring Workshop (SCMW-91) and the initial meeting of ISO TC108/WG17 in Houston, Texas. Both of these events included significant discussions of topics related to machinery vibration, which I will attempt to summarize in this letter for your information. Additionally, I want to quell any feelings of uneasiness about potential conflicts which may have preceded these meetings. I found both sessions to be conducted fairly and objectively, and believe that they were truly constructive undertakings.

The focus of SCMW-91 was to examine the field of condition monitoring as it currently exists, and to highlight areas which might be suitable for standardization work. This turned out to encompass numerous disciplines, including vibration, lubrication, performance, electrical, and non-destructive testing and evaluation. Although vibration is now probably the most widely applied condition monitoring method, it was clear that a broad range of technologies are coming into widespread use and are in need of consistent terminology, methodology, and criteria.

Three broad areas of consideration were identified by the SCMW-91 participants, namely:
- Sensors (including calibration, certification, and signal conditioning);
- Data Processing, Presentation, Communication, and Interpretation; and
- Overall Guidelines for Condition Monitoring and Diagnostics Practice

Each of the broad areas was broken into subcategories, which were then used in the TC108/WG17 meeting as the basis for proposed work items to submit to ISO. Much support for this work was evidenced among all the attendees from many different countries.

The TC108/WG17 group agreed that there were far too many work items to be handled by a single Working Group. Accordingly, a proposal to ISO will be drafted describing the work items and suggesting establishment of a new set of related Working Groups, perhaps as a new TC108 subcommittee. This proposal will be circulated among TC108 members and submitted for a vote prior to the Kobe meeting in September. Full

SUBJ: SCMW-91 AND ISO TC108/WG17 MEETING

discussion will take place at the Kobe meeting on any plans for restucturing as a result of organizational changes (e.g. new subcommittee), and I understand there will be ample time for this since an additional plenary session of TC108 is being arranged.

There was a clear consensus among TC108/WG17 that any new Working Groups should be mindful of relevant work being done by existing ISO groups, and that new groups would be formed with the intent to complement and expand upon the existing work in a condition monitoring context. In short, existing groups will be regarded as a valuable source of technical input for their areas of expertise. As an example, it was agreed that TC108/SC2/WG1 would have cognizance of work items such as the statistical processing of vibration data toward development of evaluation criteria.

Prior to last week, there may have been some misunderstanding within TC108/SC2/WG1 about the intended scope and direction of these meetings, particularly with respect to cognizance for ISO work related to machinery vibration. I feel confident that TC108/WG17 is thoroughly committed to using existing ISO resources and expertise to support its work, which of course includes relying upon TC108/SC2/WG1 input for machinery vibration items.

I hope the brief sketch presented here will be helpful in placing the events of the past weeks into a more constructive context. I see a clear potential here for a valuable partnership between TC108/SC2/WG1 and the new Working Groups which may evolve, from which everyone concerned stands to benefit.

Sincerely,

W. Strobel

Werner Strobel
Member, S2-76

Copy to:
Dr. A. Brenig
Dr. D. Muster

January 14, 1991

ACOUSTICAL SOCIETY OF AMERICA COMMITTEE ON STANDARDS
(ASACOS)

ACCREDITED STANDARDS COMMITTEE ON MECHANICAL SHOCK
AND VIBRATION - S2

WORKING GROUP S2 - 79:
"CHARACTERIZATION OF THE DYNAMIC PROPERTIES
OF VISCOELASTIC POLYMERS"

MEETING REPORT
San Diego, California
November 29, 1990

## I. ATTENDEES:

### A. S2/WG79 Members.

| | |
|---|---|
| 1. Richard Deigan, | Tel. (301) 227-4905 |
| 2. Walter Madigosky, | Tel. (301)394-2464 |
| 3. Ahid Nashif, | Tel. (714) 660-7051 |
| 4. Raymond Wetton, | Tel. (01144) 509 890 580 |
| 5. Wayne Reader, | Tel. (301) 493-5500 |

### B. Visitors.

| | |
|---|---|
| 1. James Dlubac, | Tel. (301) 227-4906 |

## II. INTRODUCTION:

The initial meeting of S2/WG79 was held during the Spring'90 meeting of the Acoustical Society of America (ASA) in State College, PA on May 22. The primary objective of S2/WG79 was established at this meeting to be the identification of a standard viscoelastic polymer and associated procedures which would be used to calibrate the varied apparatus used to measure the complex moduli of viscoelastic polymers.

## III. SUMMARY OF Nov 29, 1990 MEETING:

### A. Candidate Standard Materials.

Three materials or groups of materials were discussed as candidate standard polymers. These materials and a brief summary of the advantages and disadvantages which were discussed are:

1. NIST[1] Polyisobutylene (suggested by Dave Jones and Bob Megill

a. Has been available from NIST for 30 years for use as a molecular weight standard; will probably continue to be available.

b. May be expensive.

c. Is known to be chemically inert.

d. EXON (in United Kingdom) markets a polyisobutylene, but stability, batch-to-batch repeatability, cost, dimensions of available stock, linearity (with respect to stress/strain) of properties, and other necessary characteristics were not available during meeting.

2. 3M[R] 467 and 468 adhesive (suggested by Ahid Nashif)

a. Economical

b. More than 10 year data base for moduli

c. Available only in thin sheets.

3. Scientific Polymer Products, Inc. (Family suggested by Les Sperling through Dave Jones):

a. Poly- methacrylate (glassy at room temperature)

b. Polyvinyl Acetate

c. Polydimethyl Siloxane (low loss, difficult to bond)

d. Polystyrene

Objective is to cover range of properties ?

## B. MATERIAL FEATURES

1. Cost - should be economical.

2. Availability - should be readily available in sizes and shapes required for various machines.

3. Bondable - must be able to bond specimen to test fixtures, end pieces, etc.

4. Versatility - material, or family of materials must be usable over parameter ranges covered by various machines.

5. ?????

## C. PROCEDURES FOR USE OF STANDARD POLYMERS

The meeting attendees agreed that a set of procedures must be developed to guide use of the standard polymers. The following summarizes the key points:

1. All interested operators of a modulus measurement apparatus are encouraged to participate.

2. Each participant will provide a written copy of the procedures used to measure the moduli of the standard polymers.

**********

1. NIST = National Institute of Standards and Technology

3. Each operator will employ their usual procedures

a. Test specimen size and shape
b. Temperature range
c. Frequency range
d. Time/temperature superposition algorithms
e. Specimen replicates
f. Mounting fixtures and adhesive
g. Stress/strain state; but should attempt to ensure linearity
h. Parameter sweep rates
i. ???

4. The procedures provided by participants will be merged into a "generic" procedure which forms the basis of a draft standard. This standard is intended to define the materials and their use for calibrating various machines.

D. Assignments:

1. Raymond Wetton. Determine particulars for the EXON polyisobutylene.

2. Walter Madigosky. Identify silicone polymers which may be used as low loss standards.

3. Wayne Reader. Obtain particulars on the NIST polyisobutylene.

4. Contact Organizers of DAMPING'91 to arrange for meeting of S2/WG79 during DAMPING'91 in San Diego, February 13 - 15, 1991.

Respectfully Submitted,

Wayne T. Reader, Chair
S2/WG79

1. NIST = National Institute of Standards and Technology

S2/222
ATTACHMENT L

ANSI S2-81 PROGRESS REPORT 7 FEBRUARY 1991

A meeting of S2-81 was held 29 Nov 1990 at the recent ASA Conference in San Diego. It was agreed that ISO 5347 and its associated 20 addenda be reformatted for conversion to an ANSI standard. These standards concerning the calibration of pickups would be combined into a three part ANSI standard. Part 1 will cover general information on calibration and the laser interferometry method of primary calibration. Part 2 will cover other primary and secondary calibration methods. Part 3 will cover special calibrations such as environmental and resonance effects. We believe that, by reformatting this standard, it will attract greater interest. In response to an ANSI request, all international standards pertaining to the scope of S2-81 were reviewed as to their status as a converted ANSI standard. This status report was forwarded to Dr. Brenig for further action. A third working draft of a proposed ISO standard entitled Radial Rotating Shaft Vibration Measuring Systems Part 1 Relative and Absolute Signal Sensing was prepared and sent to the Secretariat of ISO/TC 108 for distribution among the members of WG 7. Finally, recommendations were provided to Dr. Brenig as to the disposition of old ANSI standards which fall under the purview of S2-81.

B. Douglas, Chair
S2/WG81

ACOUSTICAL·SOCIETY·OF·AMERICA

OFFICE OF THE
STANDARDS SECRETARIAT

AVRIL BRENIG, Dr. P. H.
STANDARDS MANAGER

335 EAST 45TH STREET, NEW YORK, NEW YORK 10017-3483

Telephone (212) 661-9404
Telex 960983 AMINSTPHYS NYK
Telefax (212) 949-0473

15 April 1991

TO: S.I. Hayek, Chair S2

Re: Letter Ballot LB/S2/217 sent to Organizational Members of Standards Committee S2 on 15 February 1991 and closed on 29 March 1991

SUBJECT: Approval of the proposed withdrawal of ANSI Z24.21-1957 Methods for Specifying the Characteristics of Pick-ups for Shock and Vibration Measurements, and the proposed reaffirmations of ANSI S2.46-1989 Characteristics to be Specified for Seismic Transducers and ANSI S2.61-1989 Guide to the Mechanical Mounting of Accelerometers

Enclosed please find tally of the above letter ballot, showing results as follows:

| | | CLASSIFICATION OF MEMBERS | |
|---|---|---|---|
| AFFIRMATIVE VOTES | 7 | P - PRODUCER | 3 |
| NEGATIVE VOTES | - | C - CONSUMER | - |
| ABSTENTIONS | - | G - GOVERNMENT | 3 |
| NOT RETURNED | 2 | GI - GENERAL INTEREST | 3 |
| TOTAL | 9 | TOTAL | 9 |

Continuation of results of letter ballot S2/217:

AFFIRMATIVE VOTES:

| | |
|---|---|
| Brown, R. | Institute of Environmental Sciences |
| Hayek, S.I. | Acoustical Society of America |
| Henderson, D.A. | U.S. Dept. of the Air Force |
| Kilcullen, A. | David Taylor Research Center |
| Kukk, A. | U.S. Dept. of the Navy - Naval Systems Command |
| Lally, R.W. | PCB Piezotronics, Inc. |
| Serbyn, M.R. | Nat'l. Institute of Standards and Technology |

NEGATIVE VOTES:

None

ABSTENTIONS:

None

NOT RETURNED:

| | |
|---|---|
| Rawlings, D. | National Electrical Manufacturers Association |
| Stadelbauer, D.G. | Schenck Trebel Corporation |

Dr. Avril Brenig
Standards Manager

cc: Vice Chair, Standards Committee
Chair and Vice Chair, ASACOS.

ACOUSTICAL SOCIETY OF AMERICA

OFFICE OF THE
STANDARDS SECRETARIAT

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Telex 960983 AMINSTPHYS NYK
Telefax (212) 949-0473

**IMMEDIATE RETURN REQUESTED**

LB/S2/217
15 February 1991

Return to: Letter Ballot Department
Due date: 29 March 1991

ADMINISTRATIVE LETTER BALLOT
ACCREDITED STANDARDS COMMITTEE
ON MECHANICAL SHOCK AND VIBRATION, S2

Topic: Approval of the proposed withdrawal of ANSI Z24.21-1957 Methods for Specifying the Characteristics of Pick-ups for Shock and Vibration Measurements, and the proposed reaffirmations of ANSI S2.46-1989 Characteristics to be Specified for Seismic Transducers and ANSI S2.61-1989 Guide to the Mechanical Mounting of Accelerometers

Authorized by: S.I. Hayek, Chair S2

Distributed by: A. Brenig, ASA Standards Manager

Reference Document:

ATTACHMENT A Letter from B. Douglas, Chair S2/WG81, to A. Brenig, dated 5 December 1990

Background Information:

Standards are reviewed by the developing Standards Committee for their proposed revision, reaffirmation or withdrawal once every five years.

Accordingly, upon recommendation from B. Douglas, Chair of S2/WG81, Use and Calibration of Vibration and Shock Measuring Instruments, it is recommended that ANSI Z24.21-1957 be withdrawn since it is obsolete and partially in conflict with ANSI S2.46-1989. The two standards, ANSI S2.46-1989 and ANSI S2.61-1989 are recommended for reaffirmation at this time.

S2/222
ATTACHMENT M-4
ATTACHMENT A

ANNAPOLIS LABORATORY
ANNAPOLIS, MD 21402-5067

CARDEROCK LABORATORY
BETHESDA, MD 20084-5000

IN REPLY REFER TO:

DEPARTMENT OF THE NAVY
DAVID TAYLOR RESEARCH CENTER

5 December 1990

Dr. Avril Brenig, Standards Manager
Acoustical Society of America
335 East 45 th Street
New York, N. Y. 10017-3483

Dear Avril:

With regard to our conversation at the recent S2 meeting in San Diego, I am formally responding to your request as to the disposition of old standards which fall under the scope of S2-81. In the list provided by Dr. Hayek, there are three standards which are within the purview of S2-81; ANSI S2.46-1989, ANSI S2.61-1989 and ANSI Z24.21-1957 (R1989). As chairman of S2-81, I recommend that ANSI maintain S2.46 and S2.61 on the basis that these two standards are current having been approved only last year but I recommend that ANSI withdraw Z24.21-1957 since it is no longer current and its scope is in partial conflict with the recently issued standard S2.46.

I, also, want to take this opportunity to wish you a merry Christmas and a happy and prosperous new year.

Sincerely,

Bruce

Bruce Douglas
Research Director

Robert M. Hric

NIOSH/H-A & W-Body Vib.
OSHA/Mach. Noise & Vib.
Maintenance and Environmental
Engineering Section
Facilities Engineering Dept.

Transmission and Chassis
Division General Office
29500 Plymouth Road (T3A)
Livonia, Michigan 48151
Telephone: 313/523-3941
Fax: 313/523-4160

**MINUTES OF THE COMMITTEE MEETING OF THE A (ASA) WORKING GROUP S2/WG88 MEASUREMENT A VIBRATION.**

**GENERAL MOTORS TECHNIC**
**WARREN, MI**
**NOVEMBER 7 & 8, 1990**

The meeting was called to order at 8:30 AM on November 7, 1990 by Mr. Bob Hric.

The first thing that was done was a self introduction of each of the Committee Members giving their Company Affiliation as well as their job title.

Mr. Hric then pointed out that he had a copy of a Proposed National Standards for "Evaluation Of Multi-Frequency Mechanical Vibrations In The Living And Working Area On Ships And Floating Structures". Mr. Hric indicated that this Proposed Standard was being circulated among several other related Committees and Organizations for comment and vote of acceptance. Mr. Hric also pointed out a list of all of the Committees working on ASA/ANSI Standards for Vibration.

Next a report was given by Mr. Joe Kmec on the interim meeting of the Editorial Sub-Committee held on September 27, 1990 at Purdue University. Copies of the Minutes of that meeting were made available to all Committee Members present and a copy of the Minutes are attached to these Minutes. Mr. Kmec did indicate that the ideas outlined in his report and the Minutes of the meeting were intended as general guidelines only.

Next, Mr. Jim Pine gave a presentation on the concept of "Banding". Mr. Pine indicated that the concept of Banding revolved around the idea of using several "Bands" which encompassed orders of running speed or multiples of the operating speed of a piece of equipment. At this point Mr. Pine produced, and gave copies to all Committee Members, of a document which General Motors has developed.

Next, Mr. Craig Bradfield delivered a short report on an interim meeting of the Measurement Techniques Sub-Committee held September 21, 1990 at the Delco Products Facility in Dayton, Ohio. Mr. Bradfield then introduced Mr. Doug Grant who read the Minutes of the interim meeting.

Mr. Hric then asked that the Minutes of the previous full Committee Meeting be read. That meeting was held at the Chrysler Motor Transmission Plant in Kokomo, Indiana on July 18, 1990. The Minutes were read by Mr. Tom O'Brien. A motion was made by Dr. Eugene Rivin that the Minutes be accepted as read. This was seconded by Mr. Hugh Lake and a vote was taken which approved the Minutes.

Tenative dates were then selected for the next meeting with those dates being February 26 and 27, 1991. The location of the next meeting was not decided however, Mr. Pine did offer the General Motors Technical Center as a possible site if no other site could be found.

At this point, Mr. Pine described some of the General Motors Technical Facilities and indicated the various rooms in which Sub-Committees would be meeting.

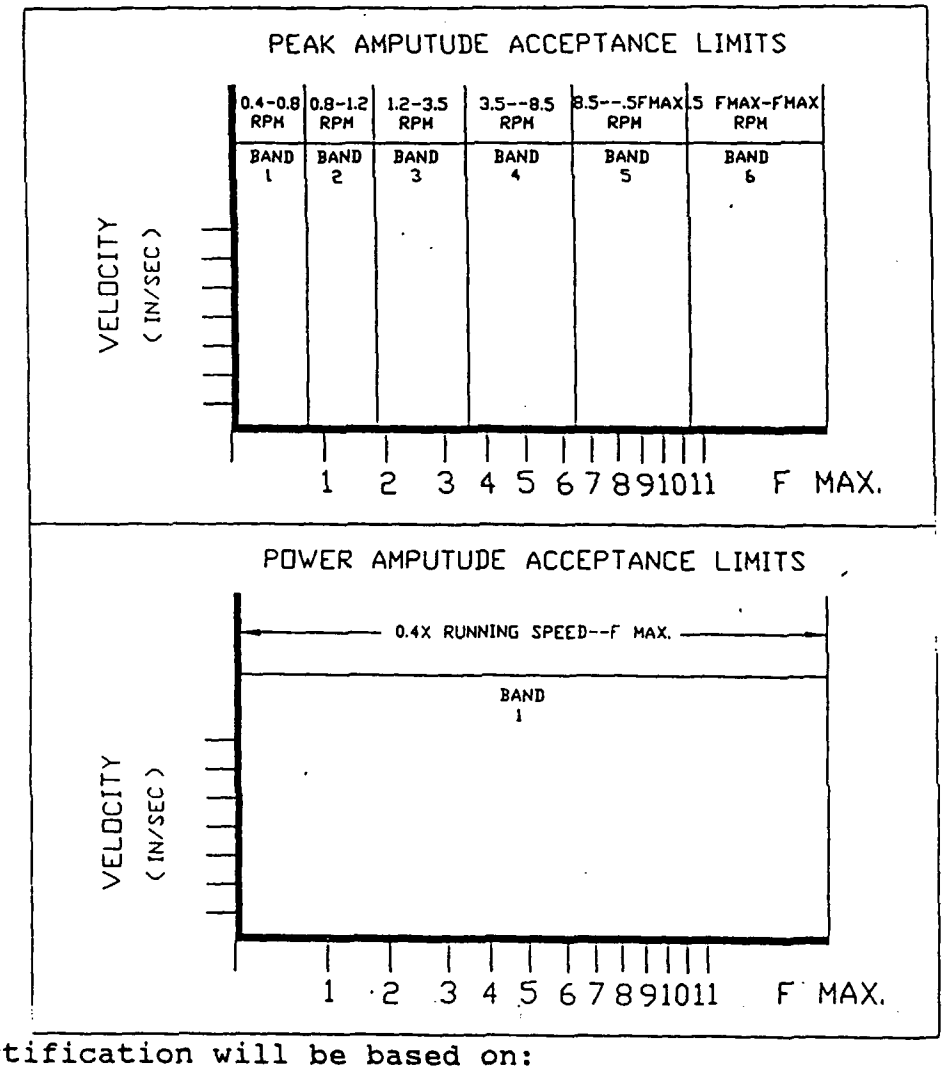
Mr. Hric then pointed out that the Environment and the Drive Apparatus Sub-Committees did need more members if anyone wanted to volunteer or if they knew of any other individuals who could contribute.

At this point the main Committee Meeting broke up and the various Sub-Committees met for the rest of the day.

On the morning of November 8, 1990, the Spindle, Editorial, and Measurement Techniques Sub-Committees met as a group. The meeting started at 7:30 and shortly thereafter the group was joined by all of the other Sub-Committees so that the meeting became a general Committee meeting. The first piece of business was a motion offered by Mr. Jim Pine. The wording of the motion is shown on the next page.

Original motion by Mr. Jim Pyne:

An FFT Analyzer shall be used for the purpose of machine tool vibration certification. The following bands shall be considered:




Certification will be based on:

- 400 lines of resolution (higher allowaed in band 1)
- Hanning Window
- (4) averages

At the designated measurement positions suitable surfaces shall be provided such that the mounted transducer will mount securely. The transducer mounting shall be such that system response (FFT, cables, transducer and mount) shall be flat from .4 x running speed to Fmax.

There was quite a bit of discussion relative to Mr. Pine's motion and in all five ammendments to the motion were eventually offered. The first amendment suggested that of the six bands described in Mr. Pine's motion, bands 1,2, and 3 should be accepted, but bands 4,5, and 6 should be left for later definition by the whole Committee.

The second amendment offered suggested that on the two graphs which are part of Mr. Pine's motion that the vertical axis labeled "Amplitude" could be defined as displacement, velocity, or acceleration as required. Mr. Pine's original motion suggested that this vertical axis be velocity only.

The third amendment that was offered suggested that the vertical peaks of the individual lines of resolution did not adequately cover the sitaution and that a calculated overall amplitude should be considered. This calculated overall amplitude would be a square root of the sum of the square of the individual line of resolution peaks within a given band.

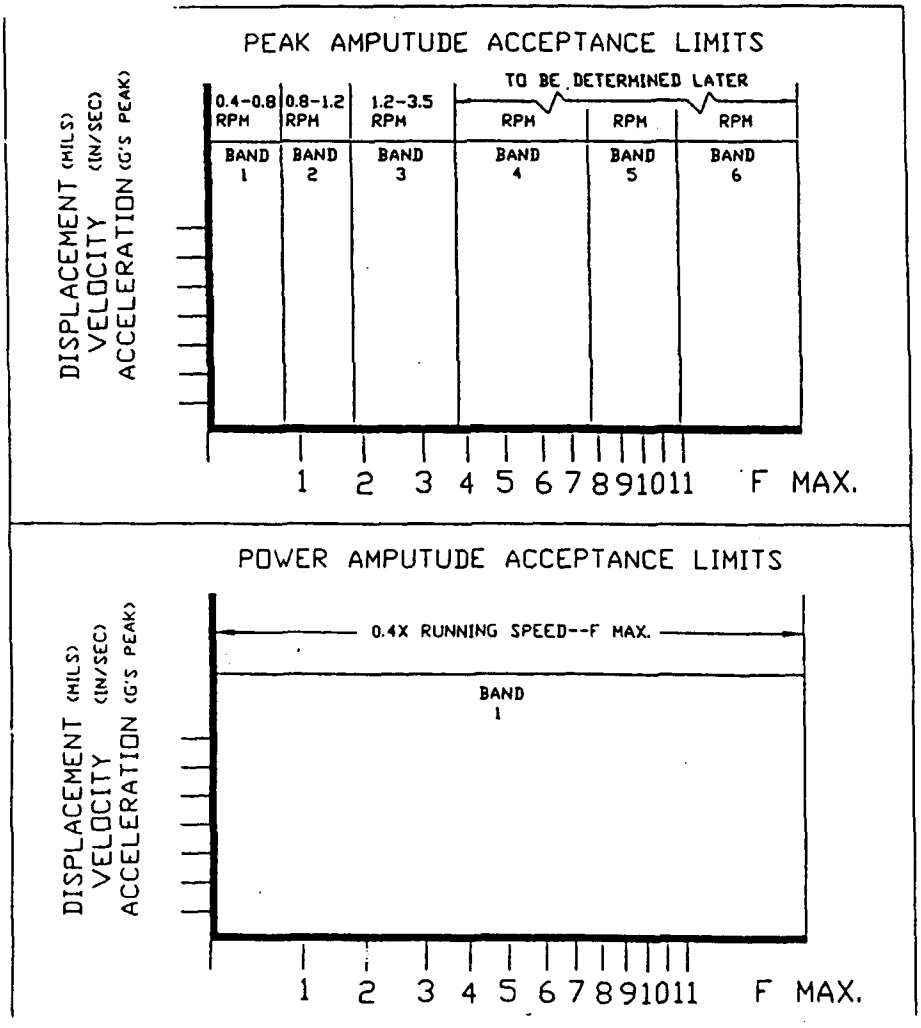
Amendments 4 and 5 suggested that the words "linear" and "non-overlaping" be added to the wording of the motion concerning the types of averages to be considered when taking the vibration signature.

There was also considerable discussion relative to whether 400 lines of resolution were enough in all cases but finally it was decided that 400 lines of resolution would be adequate.

The individual amendments were voted on one by one with all of them being accepted and finally the motion made by Mr. Pine, as amended was passed by the entire Committee. The wording of the amended motion is shown on the next (2) pages.

Final motion by Mr. Jim Pyne (as amended):

An FFT Analyzer shall be used for the purpose of machine tool vibration certification. The following bands shall be considered:



The maximum amplitude of any line of resolution shall not exceed the Band limit*

and/or;

The calculated overall amplitude in a Band shall not exceed the Band limit* where:

$$A_{TOT} = \sqrt{\frac{\sum_{i=1}^{n} A_i^2}{1.5}}$$

$A_i$ = lines of resolution in a Band.

(* - These Band limits are not necessarily the same numerical limits.)

Certification will be based on:
- 400 lines of resolution (higher resolution allowed in Band 1 if required)
- Hanning Window
- (4) averages (linear,non-overlapping)

At the designated measurement positions suitable surfaces shall be provided such that the mounted transducer will mount securely.

The transducer mounting shall be such that system response (FFT, cables, transducer and mount) shall be flat from .4 x running speed to Fmax.

At this point, the General Committee Meeting recessed for lunch. After lunch, each of the Sub-Committees delivered brief reports on what they had discussed in their meetings the previous day. The Minutes of the individual Sub-Committees are attached at the rear of these Minutes.

Mr. Pine pointed out that the Committee was still open to new memebership and that in looking at the current list of members, the Aerospace and Farm Implement Industries were not very well represented and that perhaps members from these two areas might be recruited.

Dr. Rivin indicated that he would attempt to procure copies of some vibration standards and guidelines from associates that he has in Europe. This information would be deceminated either before the next meeting or at the next meeting of the full Committee.

A final subject that was brought up would be the location of the next meeting of the full Committee. As pointed out earlier, the dates of February 26 and 27, 1991 had been chosen. At this point, Mr. Mike Young of Vibro-Dynamics Corporation offered their Facility as the site for the next meeting of the full Committee. Mr. Young indicated that the Vibro-Dynamics Facility is in a Chicago Suberb and that he will be forwarding information relative to directions as well as lodging near their Facility. This information will be deceminated by either Mr. Bob Hric or his designated Associate. The meeting then adjourned at approximately 1:00 PM.

TOB794.TJ

S2/222
ATTACHMENT O-1

# ACOUSTICAL·SOCIETY·OF·AMERICA

OFFICE OF THE
STANDARDS SECRETARIAT

AVRIL BRENIG, Dr. P. H.
STANDARDS MANAGER

335 EAST 45TH STREET, NEW YORK, NEW YORK 10017-3483

Telephone (212) 661-9404
Telex 960983 AMINSTPHYS NYK
Telefax (212) 949-0473

7 December 1990

TO: U.S. TAG Chairs for ISO/TC 43, Acoustics, and Subcommittees, and ISO/TC 108 Mechanical Vibration and Shock, and Subcommittees, and ISO/TC 94/SC12 Hearing Protection (Messrs. Bartheld, Douglas, Maedel, Muster, Stadelbauer, von Gierke)

FROM: A. Brenig

re: Review of the application of ISO Standards - memorandum from ANSI

Please find attached memorandum, dated 20 June 1990, on which ANSI requests a reply. The date for the response has now passed, but the need for the collection of information and submittal to ANSI is still there.

Please therefore review the lists of standards which are appended to the memorandum and, if needed, ask the appropriate persons for their information on the matter of how closely the national and corresponding ISO standards agree or differ in their technical content. I am sending a copy of the memorandum, and its attachments, to the Chairs for the corresponding national Standards Committees.

We would like to be able to submit this information to ANSI by no later than 15 January 1991. Therefore, it would be appreciated if you could send the information to me by 7 January 1991.

Thank you for your help.

A P Brenig

cc: Eldred
Embleton
Fletcher
Hayek
Johnson
McKinley
Royster
Sterbyn
Wilber
Wong

S2/222
ATTACHMENT 072

Second Request

ANSI

American National
Standards Institute 1430 BROADWAY, NEW YORK, NEW YORK 10018
TEL. 212.642.4900
FAX. 212.398.0023
Cable: Standards, New York
International Telex: 42 42 96 ANSI UI

GARY W. KUSHNIER, Vice President, Standards Technology

June 20, 1990

TO: Administrators, U.S. Technical Advisory Groups for ISO/TCs and SCs

FROM: Gary W. Kushnier, Vice President, Standards Technology

SUBJECT: Application of ISO Standards

More and more frequently ANSI is being asked to indicate the degree of equivalence or relatedness of US national standards with the corresponding ISO standards. This is particularly true in light of the European Community's efforts to harmonize its standards by 1992 and to use international standards to do the job if they exist. The results of a related survey conducted by both ISO and IEC in mid-1989 were inconclusive because accurate statistics on the subject do not exist. It is known however, that many ISO standards are technically "based on" US standards and similarly, that many ISO standards have been incorporated in whole or in part in domestic standards. The purpose of this letter is to enlist your support in obtaining more accurate data on this question.

Enclosed are lists of ISO standards by TC that are applicable to each U.S. Technical Advisory Group. Also on this list are draft International Standards, (DIS) and draft proposals/committee drafts. Please ignore the draft proposals/committee drafts listings. It would be appreciated if you would indicate next to each ISO standard/draft the designation of any U.S. national standard, trade or professional association standard or other public standard (eg: MIL standard). Please mark each designation with (I), (E), (P), or (R) to indicate which of the following definitions most closely describes the relationship.

(I) IDENTICAL to the corresponding International Standard (facsimile or authentic translation with identical content and presentation).

(E) Technically EQUIVALENT to the corresponding International Standard (in the sense that what is acceptable to one standard is acceptable to the other and vice-versa).

(P) PARTLY EQUIVALENT to the corresponding International Standard (part of the standard is technically equivalent).

(R) RELATED but not equivalent to the corresponding International Standard.

Would you please return the enclosed sheets to me by July 31, 1990 with the requested information. If none of the international standards in your area correspond in any way to a national standard, please let me know.

Thank you for your cooperation. If you have any questions, please feel free to contact your usual ANSI technical staff contact.

Sincerely,

Gary W. Kushnier
Vice President
Standards Technology

GWK/9053D

Encls.

cc w/o encls: Chairmen, U.S. TAGs for ISO/TCs/SCs

# INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

**Technical Committee No. 108 • Mechanical Vibration and Shock**

Secretariat: American National Standards Institute
Reply to the following address with copy to ANSI:

Standards Secretariat
Acoustical Society of America
335 East 45th Street
New York, New York 10017-3483, U.S.A.

Telephone (212) 661-9404
Telex 960983 AMINSTPHYS NYK
Telefax (212) 949-0473

ISO/TC 108/WG 17 N 4
(14 March 1991, Houston, Texas)

MINUTES
The Initial Meeting of ISO/TC 108/WG 17,
"Vibration Condition Monitoring",
held on Thursday, 14 March 1991, in Houston, Texas.

1. The meeting was opened by the Convenor, Mr. D. Muster, at 9:20 hours. Those present introduced themselves. The attendance list for the meeting is in ISO/TC 108/WG 17 N 3 which is attached.

2. The Draft Agenda for the meeting (ISO/TC 108/WG 17 N 2) was approved unanimously.

3. The Editing Committee was appointed. Its members were Ms. A. Brenig, Mr. C. Demeritt, Mr. K. M. Eldred. Mr. D. Muster and Mr. A. Olsson.

4. Mr. R. Rajeswaran (ISO Central Secretariat) spoke, calling attention to the productive, preliminary work (notably that of Mr. D. Muster) required to organize the Standardization and Condition Monitoring Workshop --- 1991 (SCMW-91). In particular, Mr. Rajeswaran mentioned the coupling of the SCMW-91 with the first meeting of ISO/TC 108/WG 17 as an exemplar of how to assess the need for standardization in an emerging technical field and then follow the assessment with immediate action by a working group charged with exploring the feasibility and desirability of developing standards in the field.

Mr. Rajeswaran said that he was looking forward to receiving the findings of the SCMW-91 in order that they could be considered by the ISO as a "technology trend assessment" document of an emerging technology. Further, the compilation of candidate Work Items produced by the SCMW-91 would be passed on to ISO/TC 108/WG 17 for development as international standards. Mr. Rajeswaran observed that this new approach to developing standards in emerging technologies is a very effective method and that the ISO would study it with the view that the method might be used in furthering standardization in other emerging disciplines. Mr. Rajeswaran thanked Mr. Muster for his work and vision of the future with respect to emerging technical fields. He added that, in the context of existing ISO rules and procedures, an ISO Technical Committee could review topics outside its scope and make recommendations related to their future handling.

He urged that ISO/TC 108/WG 17 should not feel inhibited in its approach to the Work Items it would receive from the SCMW-91, but to respond to the challenge offered by the new technical field of condition monitoring and diagnostics of machines in innovative and creative ways.

5. Mr. Muster referred to the similarities between the manner in which the new technical fields of condition monitoring and diagnostics and modal analysis are being processed. ISO/TC 108/WG 18 was established at the Milan meeting of ISO/TC 108 for the purpose of developing standards in the field of modal analysis. The initial meeting of WG 18 was scheduled to be held in conjunction with the 9th International Modal Analysis Conference in Florence, Italy in April 1991. Unfortunately, the 9th IMAC was cancelled because of the Gulf War. The meeting of WG 18 has been rescheduled for 10 June 1991 at Hampden House (the BSI Conference Centre), 61 Green Street, London W1, U.K. However, it is planned that later meetings of Working Group 18 will be coordinated with the 10th IMAC, which is scheduled to be held in January 1992 in Los Angeles, California.

6. Review of the activities of ISO/TC 108 in the field of condition monitoring and diagnostics:

The membership and activities of ISO/TC 108/WG 17, "Vibration Condition Monitoring", were reviewed by Mr. D. Muster. A progress report on the activities of WG 17 (ISO/TC 108/WG 17 N 1) was circulated to the members of ISO/TC 108 on 16 July 1990 (ISO/TC 108 N 531).

Mr. Muster stated that, at its meeting in Guangzhou, China, in September, 1988, ISO/TC108 appointed Ad-hoc Committee B to explore whether the field of vibration condition monitoring and diagnostics was sufficiently mature that ISO/TC 108 should establish a working group to develop standards in the field. The Committee was to report its findings to ISO/TC 108 at the Technical Committee's next meeting in Milan, Italy, in March/April, 1990.

At its meeting in Milan, in April 1990, in response to the recommendation of Ad-hoc Committee B, ISO/TC 108 established a new Working Group 17, "Vibration Condition Monitoring" with the scope "to develop international standards related to the vibration condition monitoring of reciprocating and rotating machinery." (Resolution No. 10, ISO/TC 108 N 526, dated 5 April 1990). Subsequently, ISO/TC 108 recommended to ISO that "vibration condition monitoring" be added to the examples of ISO/TC 108's standards-developing activities given in its scope. (This recommendation was approved by the ISO Technical Management Board at its meeting in September, 1990.) Further, at its meeting in April 1990, ISO/TC 108 agreed to act as a cosponsor of the "Standardization and Condition Monitoring Workshop --- 1991" which was concluded on 13 March 1991 (11-13 March 1991).

ISO/TC 108/WG 17 N 4
(14 March 1991, Houston, Texas)

The theme of the "Standardization and Condition Monitoring Workshop --- 1991" was ".. to explore the feasibility and desirability of developing standards in the field of condition monitoring, in particular, in vibration condition monitoring". The Workshop had four principal goals: (1) a review of ISO and ISO/TC 108 missions and procedures that relate to their standards-developing activities, (2) a state-of-the-art review of the field of condition monitoring for rotating and reciprocating machinery with the goal of establishing an inventory of its principal subfields, (3) an examination and review of the topics in the just-mentioned inventory in order to evaluate the field as a whole and topics in its subfields for their suitability for standardization, and (4) a report summarizing the discussions and principal conclusions reached at the SCMW-91, including a collection of work items for ISO/TC 108/WG 17 to consider at its next meeting.

The current central interest in condition monitoring and diagnostics of machines is principally in the field of high-performance, high-speed, relatively light-weight machinery, such as pumps (ISO/TC 115), compressors (ISO/TC 118), internal combustion engines (ISO/TC 70), and gas turbines for aerospace (ISO/TC 20) and industrial applications and land vehicles (ISO/TC 118), vehicles for transport on land (ISO/TC 22, 23, 110 and 127), sea (ISO/TC 188) and air (ISO/TC 20), and information processing systems (IEC-ISO/JTC 1) and other technologies that provide support to the machine-oriented technical fields (ISO/TC 4, 14, 28, 41, 43, 60, 69, 108, 131, 135). In all, there are, at least, twenty five IEC and ISO Technical Committees (IEC-ISO/JTC 1 and ISO/TC 4, 14, 20, 22, 23, 28, 39, 41, 43, 60, 69, 70, 72, 96, 108, 110, 115, 117, 118, 123, 127, 131, 135 and 192) that cover the machines and supporting technologies in these areas.

The technologies represented by condition monitoring and diagnostics exist, perhaps under different names and with different emphases, in many of the existing hardware-oriented technical committees of the ISO and, perhaps, in the IEC as well. This requires that technology-oriented technical committees (such as ISO/TC 108) must be prepared to maintain close relations and work harmoniously with these other groups.

7. Work Items received by WG 17 from the Standardization and Condition Monitoring Workshop --- 1991 which met in Houston, Texas, 11 - 13 March 1991:

Mr. Muster explained that the candidate Work Items received from the SCMW-91 would be processed individually in the same manner as any other proposed work items (Clause 2.1.1.1, IEC/ISO Procedures, p 14). A copy of Form 4, New Work Item Proposal (IEC/ISO Procedures, p 71) is attached to these Minutes.

At the SCMW-91, three working group convenors were appointed to lead discussions in each of the following areas:

ISO/TC 108/WG 17 N 4
(14 March 1991, Houston, Texas)

SCMW/WG 1, "Transducer Technology",
Convenor: Mr. G. Rasmussen (Denmark)
Area of interest: Sensor technology and signal conditioning.

SCMW/WG 2, "Processing of Dynamic Signals",
Convenor: Mr. G. Muster (USA)
Area of Interest: Data handling and data processing.

SCMW/WG 3, "Vibration Monitoring",
Convenor: Mr. D. Stadelbauer (USA)
Area of interest: Criteria, diagnostics and prognostics.

At the final session of the SCMW-91, the need for a SCMW/WG 4, "Quality Assurance", was discussed but not implemented. It was proposed that an exploratory working group with this title be established in ISO/TC 108 to study possible applications of the ISO 9000 series of international standards, which are concerned with quality management and quality assurance, and the EN 45000 series of European standards, which are concerned with guidelines for certifying laboratories, equipment, personnel and software [WI]. (Note: The symbol [WI] is used here to designate candidate work items proposed by an SCMW-91 working group.) The titles of the standards in the ISO 9000 series and the EN 45000 series are given immediately below.

## ISO Standards on Quality Assurance and Quality Management and European Standards on General Criteria for Certification of Laboratories, Equipment, Testing and Personnel

ISO 9000 Series:

ISO 9000: "Quality Management and Quality Assurance Standards - Guidelines for Selection and Use.

ISO 9001: "Quality Systems - Models for Quality Assurance in Design/Development, Production, Installation and Servicing".

ISO 9002: "Quality Systems - Models for Quality Assurance in Production and Installation".

ISO 9003: "Quality Systems - Models for Quality Assurance in Final Inspection and Tests".

ISO 9004: "Quality Management and Quality Systems Elements - Guidelines".

EN 45000 Series:

EN 45001: "General Criteria for Operation of Testing Laboratories".

EN 45002: "General Criteria for the Assessment of Testing Laboratories".

EN 45003: "General Criteria for Laboratory Accreditation Bodies".

EN 45011: "General Criteria for Certification Bodies Operating Product Certification".

EN 45012: "General Criteria for Certification Bodies Operating Quality Systems Certification".

EN 45013: "General Criteria for Certification Bodies Operating Certification of Personnel".

EN 45014: "General Criteria for Suppliers - Declaration of Conformity".

SCMW/WG 1, "Transducer Technology"

The SCMW/WG 1 Convenor, Mr. G. Rasmussen, presented a summary of the work of his working group, including the list of the physical parameters given below that his group considered might be measured by a condition monitoring system. (SCMW/WG 1 operated under the assumption that ISO/TC 108/WG 17 would evaluate the status of each of the work items submitted below and determine which of them should be recommended for development as standards.)

1. Temperature (infrared sensors and thermocouples).
2. Vibration (relative displacement and seismic sensors).
3. Flow (pressure sensors for gases and liquids).
4. Acoustics (steady-state and fluctuating pressure sensors and velocity sensors).
5. Force.
6. Position (spatial- and angular-position sensors).
7. Angular motion.
8. Shaft torque.
9. Bolt torque.
10. Magnetic flux.
11. Strain gages.
12. Lubricant-contaminants (detectors for general and wear debris, color, turbidity, viscosity and pH factor).
13. Other contaminants, including ice, water, particulate matter and chemicals.
14. Electrical parameters (sensors for measuring voltage, current, magnetic flux and phase).

The members of SCMW/WG 1 agreed that there was a need for the work items cited below in each of the areas given above.

a. Manufacturer's specifications [WI].
b. Standardized positions for mounting transducers [WI].

c. Calibration specifications [WI] (e.g., for portable equipment).
d. Standardized equipment and procedures for signal conditioning [WI] (e.g., low-pass filters, high-pass filters, differentiation and integration, overload indication, cable-driving, capability to insert calibration cable, plugs, connectors and barriers).

The members of SCMW/WG 1 recommended that, whenever feasible, the standards of ISO/TC 108/SC 3 be used and that the future work of ISO/TC 108/WG 17 be conducted in close cooperation with the work ing groups of SC 3 [WI]. Note: Mr. Muster commented that it is anticipated that the yet-to-be-appointed "ISO/TC 108 Secretariat Steering Committee for Condition Monitoring and Diagnostics" (SSC/CMD) will be charged with this task.

SCMW/WG 2, "Processing of Dynamic Signals"

The SCMW/WG 2 Convenor, Mr. G. Muster, presented a list of candidate work items to ISO/TC 108/WG 17. These included those for SCMW/WG 1 (Items 1-3 below), WG 2 (Items 4-7) and WG 3 (Item 8):

SCMW/WG 1: Work Items concerned with

1. Transduction [WI].
2. Cables and connectors [WI].
3. Signal conditioning [WI].

SCMW/WG 2: Work Items concerned with

4. Definitions related to the task of acquiring data [WI].
   4.1. Sampling theory.
   4.2. Anti-aliasing filters.
   4.3. Quantitization.
   4.4. Data representation.
5. Processing and analysis and procedures for obtaining descriptors.
   5.1. Time domain [WI].
   5.2. Frequency domain [WI].
   5.3. Other domains [Exploratory WI].
        Order-tracking [WI].
        Sepstrum.
        Time-frequency domain.
6. Presentation formats, including minimum concepts for a standardized form [WI].
   6.1. Time-domain presentation.
   6.2. Frequency-domain presentation.
   6.3. Other-domain presentation.
7. Data communication and interchange, including header and data formats [WI].

SCMW/WG 3: Work Items concerned with

8. Data interpretation and diagnostics [WI] and prognostics [WI].
8.1. Data interpretation, including historical data and trends, data compression, applied statistical analysis methods.
8.2. Diagnostics, including the structure, testing and validation of the rules.
8.3. Prognostics.

SCMW/WG 3, "Guidelines for Condition Monitoring and Diagnostics"

The SCMW/WG 3 Convenor, Mr. D. Stadelbauer, presented the following list of candidate Work Items to ISO/TC 108/WG 17:

1. Vibration and other machine measurements [WI].
2. Performance and process measurements [WI].
3. Tribology measurements (friction, lubrication and wear) [WI].
4. Visual inspection and nondestructive testing [WI].
5. Electrical [WI].
6. Combined effects [WI].
7. Recommended guidelines for machine classes [WI in each machine class].
(Criteria for acceptable levels of a physical parameter, a performance factor, or other observable measures of a machine's behavior, for example, vibration amplitude or wear, to be developed by other Working Groups in ISO/TC 108 or Working Groups in other ISO or IEC committees.)
(Work Items and definitions not to include aircraft.)

Summary related to the Proposed Work Items: It was agreed that there are more than 100 candidate work items in the reports of the SCMW working group convenors to ISO/TC 108/WG 17. The members of Working Group 17 discussed the candidate work items and possible courses of action of the working group. Mr. D. Muster was asked to prepare a summary of the recommendations received from the SCMW-91 Working Groups before WG 17 considered them at its next meeting. Mr. D. Muster stressed the need for a universally accepted vocabulary for the field; thus, he requested that all members of the working group send him terms with or without their definitions.

The need for a new work item entitled, "Statistical Processing of Vibration Data for Use in the Development of Criteria", was discussed. It was suggested that this work item was properly in the scope of ISO/TC 108/SC 2/WG 1. It was agreed that this suggestion would be sent to SC 2 for processing.

8. Review of the structure and direction of future work of ISO/TC 108 and their effects on ISO/TC 108/WG 17:

The participants in SCMW-91 noted that the volume of work repre-

sented by their recommendations of candidate work items may be more than can be accomplished by ISO/TC 108/WG 17 (as it is constituted at this time) and that the technical field of "Condition Monitoring and Diagnostics" is emerging as an important, new, major discipline closely allied to work already in progress in ISO/TC 108; thus, they wished to let TC 108/WG 17 know that they supported the idea that ISO/TC 108 be restructured so as to be able to develop the recommended Work Items into international standards.

In the subsequent discussion of this suggestion two specific items were mentioned: (1) the definition of the term condition monitoring and diagnostics of machines and (2) the scope of activities in ISO/TC 108 encompassed by the definition. Mr. Muster pointed out that (in September 1990) the TC 108 secretariat had submitted the following recommendation to the ISO Technical Management Board:

> "... that ISO/TC 108/SC 5, 'Condition Monitoring and Diagnostics of Machines' be established with the scope 'Standardization of the procedures, processes and equipment related to the technical activity in which selected physical parameters associated with the operation of a machine are periodically or continuously sensed, measured and recorded for the interim purpose of reducing, analyzing, comparing and displaying the data and information so obtained and for the ultimate purpose of using this interim result to support a real-time, operational decision being made by the operator of the machine.'"

**[Note: On 14 March 1991, after the WG 17 meeting was adjourned and too late to be announced to those attending the meeting, a fax message was received from Mr. C. J. Favre, Secretary of the ISO Technical Board and Deputy Secretary-General of the ISO, concerning the TC 108 Secretariat proposal cited in the preceding paragraph. The message stated, in part,**

**"[The Technical Board] considered the comments which had been received from the Technical Advisor of ISO/TC 108 concerning the establishment of a sub-committee within ISO/TC 108 to deal with [condition monitoring and diagnostics of machines].**

**I am pleased to inform you that the Technical Board supported the proposal received from ISO/TC 108 Secretariat to extend [its] scope to cover the field of condition monitoring and diagnostics of machines with a view to establishing a new subcommittee within ISO/TC 108."**

The just-cited message supported and confirmed the position of the participants of the SCMW-91, the members of ISO/TC 108/WG 17 and the ISO/TC 108 Secretariat. Establishing a new Subcommittee in TC 108 answers the need for changing the scope and structure

of ISO/TC 108 in order to be able to process the candidate work items WG 17 has already received. Ms. Brenig and Mr. Muster stated that the Secretariat will be preparing a plan shortly which will take into account this situation and others as well. The plan will be submitted to the Members Bodies of ISO/TC 108 for their review in accordance with the provisions of Clause 1.6, IEC/ISO Procedures, p 7.

The matter of a preference vote by the member bodies of ISO/TC 108 was discussed. [Note: This discussion was held before the message from Mr. Favre was received. The principal issue under discussion was whether the ISO standardization activity in condition monitoring and diagnostics of machines should be in a new Technical Committee or in a Subcommittee of ISO/TC 108. The decision by the ISO Technical Management Board may make further discussion of this issue moot.]

It was agreed that members of the working group should submit to Mr. Muster their suggestions for a definition of condition monitoring and diagnostics of machines and for the proposed scope of the new Technical Committee or Subcommittee which would be assigned the task of developing standards in the field.

Mr. Rajeswaran requested that, if possible, the technology trend assessment document, the proposed new work items, and the proposed changes in the structure of ISO/TC 108 be submitted to the ISO Central Secretariat by 31 May 1991.

9. Approval of Minutes and Draft Resolutions.

The draft resolutions were approved unanimously by the members of the working group and are appended to these Minutes (ISO/TC 108/WG 17 N 5).

10. Future meetings.

It was agreed that, at the meeting of ISO/TC 108 in Kobe, Japan, the meeting of WG 17 should be scheduled in the second week, preferably on Tuesday, 10 September 1991. The purpose of the meeting will be to continue planning the working group's activities. The working group's first technical session will occur at its second meeting, probably at the 3IMMDC in Las Vegas, Nevada (see below).

It was agreed that, following the meeting in Kobe, Japan, the next meeting of WG 17 (or its successor organization) should take place at the 3rd International Machinery Monitoring and Diagnostics Conference (3IMMDC) scheduled to be held from 9-12 December 1991 in Las Vegas, Nevada. [Meeting notice for the 3IMMDC is attached.]

ISO/TC 108/WG 17 N 4
(14 March 1991, Houston, Texas)

11. Other business.

Ms. Brenig circulated materials related to the Kobe meeting (4-13 September 1991) of ISO/TC 108 which had been prepared by the TC 108 Secretariat. Members of the working group were urged to contact their standards organizations in order to arrange for their national credentials to be present at the meeting.

12. Adjournment.

The members of Working Group 17 expressed their gratitude to Mr. M. P. Boyce and his wife, Mrs. Z. Boyce, for their kind hospitality. All agreed that they and the staff of Boyce Engineering International had truly made everyone welcome and provided the meeting with every service required. A resolution expressing these sentiments was passed by acclamation.

The meeting was adjourned at 14:50 hours.

Ms. A. Brenig
Secretary
ISO/TC 108
14 March 1991

Attachments:
- Attendance List (ISO/TC 108 N 3)
- Draft Resolutions (ISO/TC `9 N 5)
- Meeting Notice (3IMMDC)
- ISO Form 4

| NEW WORK ITEM PROPOSAL | |
|---|---|
| Date of presentation of proposal | Reference number (to be given by secretariat) |
| Proposer | ISO/TC /SC N |
| Secretariat | |

A proposal for a new work item **within the scope of an existing technical committee or sub-committee** shall be submitted to the secretariat of that technical committee or sub-committee with a copy to the Central Secretariat and, in the case of a sub-committee, to the secretariat of the parent technical committee. The proposal will be circulated to the P-members of the technical committee or sub-committee for voting, and to the O-members for information. The proposer may be a member body of ISO, the secretariat itself, another technical committee or sub-committee, an organization in liaison, the Technical Board or one of the advisory committees, or the Secretary-General. Guidelines for proposing and justifying a new work item are given in ISO Guide 26 (see extract overleaf).

**The proposal** (to be completed by the proposer)

**Title of proposal**

**Scope**

**Purpose and justification** (attach a separate page as annex, if necessary)

**Urgency** (indicate, if relevant, the date by which the availability of the International Standard is considered to be necessary)

**Relevant documents to be considered**

**Relationship of project to activities of other international bodies**

**Liaison organizations**

**Need for coordination within ISO and IEC**

**Preparatory work**

- ☐ A draft is attached
- ☐ An outline is attached and it will be possible to supply a draft by (date)
- ☐ It is not possible to supply either a draft or an outline

**Concerns known patented items** (see part 2 of IEC/ISO Directives)

☐ yes ☐ no

If yes, provide full information as annex

Signature of the proposer

| Date of circulation | Closing date for voting | Signature of the TC or SC secretary |
|---|---|---|
| | | |

**Comments and recommendations of the TC or SC secretariat**

| **Comments with respect to the proposal in general, and recommendation thereon** |
| --- |
| |

**Elements to be clarified when proposing a new work item** (new standard)

**Title**
Indicate the subject matter of the proposed new standard.

**Scope**
Give a clear indication of the coverage of the proposed new work item and, if necessary for clarity, exclusions.

**Purpose and justification**
Give details based on a critical study of the following elements wherever practicable.

a) The specific aims and reason for the standardization activity, with particular emphasis on the aspects of standardization to be covered, the problems it is expected to solve or the difficulties it is intended to overcome.

b) The main interests that might benefit from or be affected by the activity, such as industry, consumers, trade, governments, distributors.

c) Feasibility of the activity: Are there factors that could hinder the successful establishment or general application of the standard?

d) Timeliness of the standard to be produced: Is the technology reasonably stabilized? If not, how much time is likely to be available before advances in technology may render the proposed standard outdated? Is the proposed standard required as a basis for the future development of the technology in question?

e) Urgency of the activity, considering the needs of other fields or organizations. Indicate target date and, when a series of standards is proposed, suggest priorities.

f) The benefits to be gained by the implementation of the proposed standard; alternatively, the loss or disadvantage(s) if no standard is established within a reasonable time. Data such as product volume or value of trade should be included and quantified.

g) If the standardization activity is, or is likely to be, the subject of regulations or to require the harmonization of existing regulations, this should be indicated.

If a series of new work items is proposed the purpose and the justification of which is common, a common proposal may be drafted including all elements to be clarified and enumerating the titles and scopes of each individual item.

**Relevant documents**
List any known relevant documents (such as standards and regulations), regardless of their source. When the proposer considers that an existing well-established document may be acceptable as a standard (with or without amendments) indicate this with appropriate justification and attach a copy to the proposal.

**Cooperation and liaison**
List relevant organizations or bodies with which cooperation and liaison should exist.

**Preparatory work**
Indicate whether the proposer or the proposer's organization is prepared to undertake the preparatory work required for the new work item.

# INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

**Technical Committee No. 108 • Mechanical Vibration and Shock**

Secretariat: American National Standards Institute
Reply to the following address with copy to ANSI:

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ISO/TC 108/WG 17 N 2
(14 March 1991, Houston, Texas)

DRAFT AGENDA
The Initial Meeting of ISO/TC 108/WG 17,
"Vibration Condition Monitoring",
to be held on Thursday, 14 March 1991, in Houston, Texas.

1. Opening of Meeting at 0900.
2. Introduction of those present.
3. Approval of Draft Agenda, ISO/TC 108/WG 17 N 2.
4. Appointment of Editing Committee.
5. Review of ISO/TC 108/WG 17 activities.
6. Review of ISO/TC 108/WG 17 Membership (ISO/TC 108/WG 17 N 1).
7. Work Items proposed for WG 17 as a result of discussions at the Standardization and Condition Monitoring Workshop - 1991 in Houston, Texas, 11 - 13 March 1991.
8. Review of structure and direction of future work of ISO/TC 108 and their effects on WG 17.
9. Approval of Minutes and Draft Resolutions.
10. Future meeting.
11. Any other business.
12. Adjournment (1600).

# INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

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ISO/TC 108/WG 17 N 3
(14 March 1991, Houston, Texas)

ATTENDANCE LIST
The Initial Meeting of ISO/TC 108/WG 17,
"Vibration Condition Monitoring",
held on Thursday, 14 March 1991, in Houston, Texas.

The following named individuals attended the Initial Meeting of ISO/TC 108/WG 17 as individual experts:

| | | |
|---|---|---|
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ISO/TC 108/WG 17 N 3
(14 March 1991, Houston, Texas)

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| Joseph Mathew | Monash University<br>Department of Mechanical Engineering<br>Centre for Machine Condition Monitoring<br>Wellington Road<br>Clayton, Victoria 3168<br>AUSTRALIA | Tel: 61-3-565 3554<br>Fax: 61-3-565 3409 |
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| Rasa Rajeswaran | ISO Central Secretariat<br>1, rue de Varembé<br>CH-1211 Geneva 20<br>SWITZERLAND | Tel: 41-22-734 1240<br>Fax: 41-22-733 3440 |
| Gunnar Rasmussen | Bruel & Kjaer<br>Haredgaden 19<br>DK-2850 Naerum<br>DENMARK | Tel: 45-42-80 05 00<br>Fax: 45-42-80 14 05<br>-80 21 63 |
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ISO/TC 108/WG 17 N 3
(14 March 1991, Houston, Texas)

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Ms. A. Brenig
Secretary
ISO/TC 108
14 March 1991

# INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

**Technical Committee No. 108 • Mechanical Vibration and Shock**

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ISO/TC 108/WG 17 N 5
(14 March 1991, Houston, Texas)

RESOLUTIONS
The Initial Meeting of ISO/TC 108/WG 17,
"Vibration Condition Monitoring",
held on Thursday, 14 March 1991, in Houston, Texas.

The following resolutions were passed unanimously by the Working Group:

It was agreed that

**Resolution 1**: The Work Items cited below (which had been received from SCMW-91) would be processed by ISO/TC 108/WG 17:

Work Item 1: An exploratory working group with the title "Quality Assurance" should be established in ISO/TC 108 to study possible applications of the ISO 9000 series of international standards, which are concerned with quality management and quality assurance, and the EN 45000 series of European standards, which are concerned with guidelines for certifying laboratories, equipment, personnel and software

Work Items 2-57: In the field of "Transducer Technology", ISO/TC 108/WG 17 should explore the feasibility and desirability of establishing standards for transducers and their associated equipment, including

1. Manufacturer's specifications.
2. Standardized positions for mounting transducers.
3. Calibration specifications, e.g., for portable equipment.
4. Standardized equipment and procedures for signal conditioning, e.g., low-pass filters, high-pass filters, differentiation and integration, overload indication, cable-driving, capability to insert calibration cable, plugs, connectors and barriers,

for each of the physical parameters given below, namely,

1. Temperature (infrared sensors and thermocouples).
2. Vibration (relative displacement and seismic sensors).
3. Flow (pressure sensors for gases and liquids).

4. Acoustics (steady-state and fluctuating pressure sensors and velocity sensors).
5. Force.
6. Position (spatial- and angular-position sensors).
7. Angular motion.
8. Shaft torque.
9. Bolt torque.
10. Magnetic flux.
11. Strain gages.
12. Lubricant-contaminants (detectors for general and wear debris, color, turbidity, viscosity and pH factor).
13. Other contaminants, including ice, water, particulate matter and chemicals.
14. Electrical parameters (sensors for measuring voltage, current, magnetic flux and phase).

Work Items 58-80: ISO/TC 108/ WG 17 should explore the feasibility and desirability of establishing standards in each of the areas listed below:

1. Transduction.
2. Cables and connectors.
3. Signal conditioning.
4. Definitions related to the task of acquiring data, including terms related to sampling theory, anti-aliasing filters, quantitization and data representation.
5. Processing and analysis and procedures for obtaining descriptors in the
   - 5.1. Time domain.
   - 5.2. Frequency domain.
   - 5.3. Other domains, including
     - 5.3.1 Order-tracking.
     - 5.3.2 Sepstrum.
     - 5.3.3 Time-frequency domain.
6. Presentation formats, including minimum concepts for a standardized form in each of the following domains:
   - 6.1. Time-domain presentation.
   - 6.2. Frequency-domain presentation.
   - 6.3. Other-domain presentation.
7. Data communication and interchange, including header and data formats.
8. Data interpretation, including historical data and trends, data compression, applied statistical analysis methods.
9. Diagnostics, including the structure, testing and validation of the rules.
10. Prognostics.
11. Vibration and other machine measurements.
12. Performance and process measurements.
13. Tribology measurements (friction, lubrication and wear).
14. Visual inspection and nondestructive testing.
15. Electrical.

16. Combined effects.
17. Recommended guidelines for machine classes. Criteria for acceptable levels of a physical parameter, a performance factor, or other observable measures of a machine's behavior (for example, vibration amplitude or wear) to be developed by other Working Groups in ISO/TC 108 or Working Groups in other ISO or IEC committees. (Work Items and definitions not to include aircraft.)

**Resolution 2**: Whenever feasible, ISO/TC 108/WG 17 should refer to and use the standards of ISO\TC 108\SC 3 and the future work of ISO/TC 108/WG 17 should be conducted in close cooperation with the working groups of ISO/TC 108/SC 3.

**Resolution 3**: Before the next meeting of ISO/TC 108/WG 17 in September 1991, Mr. Muster should review the eighty work items given in Resolution 1 and prepare a summary for the working group to consider.

**Resolution 4**: As soon as possible and not later than 1 July 1991, all members of ISO/TC 108/WG 17 should send to Mr. Muster terms (with or without definitions) for possible inclusion in a vocabulary for the technical field of condition monitoring and diagnostics (of machines).

**Resolution 5**: There is need for a standard entitled, "Statistical Processing of Vibration Data for Use in the Development of Criteria". It was agreed that this work item is properly in the scope of ISO/TC 108/SC 2/WG 1 and, therefore, that the recommendation to develop a standard in this area should be sent to the ISO/TC 108/SC 2 Secretariat for its action.

**Resolution 6**: Simply because of their number, it is not feasible for ISO/TC 108/WG 17 to attempt to develop standards in the eighty work areas specified in Resolution 1. In addition, many of the tasks described by these work areas are outside the stated scope of WG 17. For these reasons, WG 17 recommends that a new Subcommittee should be established in TC 108 with a scope appropriate to the task of developing standards in the technical areas which comprise the field known as condition monitoring and diagnostics of machines.

**Resolution 7**: As soon as possible and not later than 1 July 1991, members of the working group should submit to Mr. Muster their suggestions for a definition of "condition monitoring and diagnostics of machines" and for a statement of the proposed scope of "the new ISO/TC 108 subcommittee which should be established to develop standards in this field".

**Resolution 8**: The members of Working Group 17 wish to express to Mr. M. P. Boyce and his wife their gratitude for the hospitality they were accorded. Truly, Mr. and Mrs. Boyce and the staff of

ISO/TC 108/WG 17 N 5
(14 March 1991, Houston, Texas)

Boyce Engineering International made everyone welcome and provided the meeting with every service required. This resolution was passed unanimously by acclamation. Thank you, Dr. and Mrs. Boyce and your staff.

**Resolution 9**: At the Kobe meeting of ISO/TC 108, the meeting of WG 17 should be scheduled in the second week, preferably on Tuesday, 10 September 1991. The purpose of the meeting will be to continue planning the working group's activities. After the Kobe meeting, the next meeting of WG 17 (or its successor organization) should take place at the 3rd International Machinery Monitoring and Diagnostics Conference (3IMMDC) scheduled to be held from 9-12 December 1991 in Las Vegas, Nevada, U.S.A.

**Resolution 10**: The Project Leader and the Secretaries put forward the resolution to express the grateful appreciation of the Working Group to Mr. Rajeswaran for his contributions to its work. His informative and reflective comments helped the group keep its objectives in focus in a technical sense and within the bounds of the possible in an administrative sense. The resolution passed unanimously. Thank you, Mr. Rajeswaran.

Ms. A. Brenig
Secretary
ISO/TC 108
14 March 1991

# INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

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ISO/TC 108/WG 17 N 6
(9 May 1991)

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## ISO/TC 108/WG 17
## "Vibration Condition Monitoring and Diagnostics of Machines"

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ISO/TC 108/WG 17 N 6
(9 May 1991)

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# STANDARDIZATION AND CONDITION MONITORING WORKSHOP - 1991

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**SCMW-91 MINUTES**

Dr. Meherwan P. Boyce
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## Standardization and Condition Monitoring Workshop - 1991

## Summary of Discussions by Workshop Participants on 13 March 1991

Chairman: D. Muster (USA)
Secretary: A. Olsson (Sweden)

Summary of SCMW-91 activities, 11, 12 March 1991:

A copy of the Workshop schedule is attached (Appendix A). The Workshop Lecturers and Participants are listed in Appendix B. On the last day of the Workshop (13 March), a general discussion was held in order that the principal issues raised at the Workshop could be reviewed and summarized. The results of this discussion were prepared for presentation at the meeting of ISO/TC 108/WG 17 scheduled for the next day (14 March).

Minutes of the Workshop:

The primary goal of the Standardization and Condition Monitoring Workshop --- 1991 was to encourage discussion among the workshop participants in order that they might identify specific tasks in the technical field of "condition monitoring and diagnostics of machines" which would be suitable "Work Items" for ISO/TC 108/WG 17 to consider. To this end, three working group convenors were appointed to lead discussions in each of the following areas:

SCMW/WG 1, "Transducer Technology",
Convenor: G. Rasmussen (Denmark)
Area of interest: Sensor technology and signal conditioning.

SCMW/WG 2, "Processing of Dynamic Signals",
Convenor: G. Muster (USA)
Area of Interest: Data handling and data processing.

SCMW/WG 3, "Vibration Monitoring",
Convenor: D. Stadelbauer (USA)
Area of interest: Criteria, diagnostics and prognostics.

At the final session, the need for a SCMW/WG 4, "Quality Assurance", was discussed but not implemented. It was proposed that an exploratory working group with this title be established in

ISO/TC 108 to study possible applications of the ISO 9000 series of international standards, which are concerned with quality management and quality assurance, and the EN 45000 series of European standards, which are concerned with guidelines for certifying laboratories, equipment, personnel and software [WI]*. The titles of the standards in the ISO 9000 series and the EN 45000 series are given in Appendix C.

SCMW/WG 1, "Transducer Technology"

The Working Group 1 Convenor, G. Rasmussen, presented a list of the physical parameters that his group considered might be measured by a condition monitoring system: (An exploratory Working Group, should be established by ISO/TC 108 to evaluate the state of each of the work items below and to determine which of them should be recommended for development as standards.) [WI]

1. Temperature (infrared sensors and thermocouples).
2. Vibration (relative displacement and seismic sensors).
3. Flow (pressure sensors for gases and liquids).
4. Acoustics (steady-state and fluctuating pressure sensors and velocity sensors).
5. Force.
6. Position (spatial- and angular-position sensors).
7. Angular motion.
8. Shaft torque.
9. Bolt torque.
10. Magnetic flux.
11. Strain gages.
12. Lubricant-contaminants (detectors for general and wear debris, color, turbidity, viscosity and pH factor).
13. Other contaminants, including ice, water, particulate matter and chemicals.
14. Electrical parameters (sensors for measuring voltage, current, magnetic flux and phase).

The members of WG 1 concluded that, in each of the areas above, there was a need for:

a. Manufacturer's specifications [WI].
b. Standardized positions for mounting transducers [WI].
c. Calibration specifications [WI] (e.g., for portable equipment).
d. Standardized equipment and procedures for signal conditioning [WI] (e.g., low-pass filters, high-pass filters, differentiation and integration, overload indication, cable-driving, capability to insert calibration cable, plugs, connectors and barriers).

The members of WG 1 recommended that, whenever feasible, the standards of ISO\TC 108\SC 3 be used and that the future work of ISO/TC 108/WG 17 be conducted in close cooperation with the work-

* Recommended Work Items are designated with this symbol.

ing groups of SC 3 [WI]. Note: It is anticipated that the ISO/TC 108 Secretariat Steering Committee for Condition Monitoring and Diagnostics (SSC/CMD) will be charged with this task.

SCMW/WG 2, "Processing of Dynamic Signals"

The Working Group 2 Convenor, G. Muster, presented a list of potential work items for WG 1 (Items 1-3 below), WG 2 (Items 4-7) and WG 3 (Item 8): Note: First-order work items are indicated in brackets.

SCMW/WG 1: Work Items concerned with

1. Transduction [WI].
2. Cables and connectors [WI].
3. Signal conditioning [WI].

SCMW/WG 2: Work Items concerned with

4. Definitions related to the task of acquiring data [WI].
   - 4.1. Sampling theory.
   - 4.2. Anti-aliasing filters.
   - 4.3. Quantitization.
   - 4.4. Data representation.
5. Processing and analysis and procedures for obtaining descriptors.
   - 5.1. Time domain [WI].
   - 5.2. Frequency domain [WI].
   - 5.3. Other domains [Exploratory WI].
     - Order-tracking [WI].
     - Sepstrum.
     - Time-frequency domain.
6. Presentation formats, including minimum concepts for a standardized form [WI].
   - 6.1. Time-domain presentation.
   - 6.2. Frequency-domain presentation.
   - 6.3. Other-domain presentation.
7. Data communication and interchange, including header and data formats [WI].

SCMW/WG 3: Work Items concerned with

8. Data interpretation and diagnostics [WI] and prognostics [WI].
   - 8.1. Data interpretation, including historical data and trends, data compression, applied statistical analysis methods.
   - 8.2. Diagnostics, including the structure, testing and validation of the rules.
   - 8.3. Prognostics.

SCMW/WG 3, "Guidelines for Condition Monitoring and Diagnostics"

The Working Group 3 Convenor, D. Stadelbauer, presented the fol-

lowing list of candidate Work Items:

1. Vibration and other machine measurements [WI].
2. Performance and process measurements [WI].
3. Tribology measurements (friction, lubrication and wear) [WI].
4. Visual inspection and nondestructive testing [WI].
5. Electrical [WI].
6. Combined effects [WI].
7. Recommended guidelines for machine classes [WI in each machine class].
   (Criteria for acceptable levels of a physical parameter, a performance factor, or other observable measures of a machine's behavior, for example, vibration amplitude or wear, to be developed by other Working Groups in ISO/TC 108 or Working Groups in other ISO or IEC committees.)
   (Work Items and definitions not to include aircraft.)

**Recommendation of the Lecturers and Participants in the SCMW-91:**

The Lecturers and Participants of the SCMW-91 agreed unanimously.

**1. The candidate Work Items given in this document should be transmitted to ISO/TC 108 with the strong recommendation from SCMW-91 that ISO/TC 108 consider developing each item into an international standard.**

**2. The participants in SCMW-91 recognize that the volume of work represented by the first recommendation may be more than can be accomplished by ISO/TC 108/WG 17 (as it is constituted at this time) and that the technical field of "Condition Monitoring and Diagnostics" is emerging as an important, new, major discipline closely allied to work already in progress in ISO/TC 108; thus, they support the idea that ISO/TC 108 be reorganized so as to be able to develop the recommended Work Items into international standards.**

# STANDARDIZATION AND CONDITION MONITORING WORKSHOP - 1991

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## SCMW-91 MINUTES

## APPENDIX A

## Program

Day 1, 11 March 1991:

10:00 am - 12:00 m:
Registration.

12:40 pm - 1:00 pm:
Opening of SCMW-91:
Chairman: M. P. Boyce (USA).
Dr. L. C. Witte, Chairman, Department of Mechanical Engineering, University of Houston, Houston, Texas.
Mr. R. Rajeswaran, ISO Central Secretariat.
Mr. D. J. DeMichele, Union College, Chairman, 3IMMDC.

1:00 pm - 3:00 pm:
Session 1: Introduction.
Chairman: D. Muster (USA).

1:00 pm - 2:00 pm:
Keynote Lecture:
Prof. Mervin H. Jones (University College Swansea, UK); Lecture title: "Lubricant Analysis: The Prospects for Standardization".

2:00 pm - 3:00 pm:
Panel Discussion:
Panelists: A. Brenig (ISO/TC 108 Secretary), D. Muster (USA), A. Olsson (Sweden) and R. Rajeswaran (ISO Central Secretariat).
Topics: The goals of SCMW-91, a rationale for developing international standards in the field of condition monitoring and an introduction to the International Standards Organization and the work of ISO/TC 108.)

3:00 pm - 3:30 pm:
Afternoon break.

3:30 pm - 5:00 pm:
Session 2: Condition Monitoring Technologies I.
Chairman: D. Muster.

Applied Predictive Maintenance:
D. Stadelbauer (USA).

Sensor Technology:
G. Rasmussen (Denmark).

7:00 pm:
Reception,
Hyatt Regency Houston -- Downtown.
(Host: Boyce Engineering International).

Day 2, 12 March 1991:

9:00 am - 10:30 am:
Session 3A: Condition Monitoring Technologies II.
Chairman: M. P. Boyce.
Data Processing and Presentation:
G. L. Muster II (USA) and R. Archambault (Canada).

Performance and Tribology-based Monitoring I:
M. P. Boyce (USA).

10:30 am - 11:00 am,
Morning break.

11:00 am - 12:30 pm:
Session 3B: Condition Monitoring Technologies II.
Chairman: M. P. Boyce.

Performance and Tribology-based Monitoring II:
H. I. H. Saranavanamuttoo (Canada).

Integration of Condition Monitoring Technologies:
C. Meher-Homji (USA) and J. Cullen (Norway).

12:30 pm - 1:30 pm:
Luncheon.

1:30 pm - 3:00 pm:
Session 4A: Round-table discussion of presentations on condition monitoring technologies.
Chairman: G. L. Muster II.

1:30 pm - 2:30 pm:
Keynote Lecture: Dr. N. F. Rieger (President and Technical Manager, Stress Technology Incorporated, Rochester, NY, USA); Lecture title: "Vibration Condition Monitoring and Standardization: A Perspective".

2:30 pm - 3:00 pm:
Panel Discussion I: All panelists.

3:00 pm - 3:30 pm:
Afternoon break.

3:30 pm - 5:30 pm:
Session 4B: Round-table discussion of presentations on condition monitoring technologies.
Chairman: G. L. Muster II.
Panel Discussion II: All panelists.

7:00 pm:
Dinner,
Home of Dr. and Mrs. M. P. Boyce.
(Host: Boyce Engineering International).

Day 3, 13 March 1991:

9:00 am - 10:30 am:
Session 5A, Group discussions (Two panel members and ten invited participants per group in five areas of condition monitoring technologies).
Chairman: C. B. Meher-Homji.

10:30 am - 11:00 am:
Morning break.

11:00 am - 12:30 pm:
Session 5B, Group discussions (2 panel members and 10 invited participants per group in five areas of condition monitoring technologies).
Chairman: C. B. Meher-Homji.

12:30 pm - 1:30 pm:
Luncheon.

1:30 pm - 4:00 pm:
Session 6: Summaries of the group discussions presented by a panelist representing each group.
Chairman: D. Muster.
Panelists: Five.

4:00 pm - 4:15 pm:
Closure of SCMW-91:
Chairman: M. P. Boyce.

6 March 1991

# STANDARDIZATION AND CONDITION MONITORING WORKSHOP - 1991

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## SCMW-91 MINUTES

## APPENDIX B

## Lecturers and Participants at SCMW-91

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# STANDARDIZATION AND CONDITION MONITORING WORKSHOP - 1991

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**SCMW-91 MINUTES**

## APPENDIX C

## ISO Standards on Quality Assurance and Quality Management and European Standards on General Criteria for Certification of Laboratories, Equipment, Testing and Personnel

ISO 9000 Series:

ISO 9000: "Quality Management and Quality Assurance Standards - Guidelines for Selection and Use.

ISO 9001: "Quality Systems - Models for Quality Assurance in Design/Development, Production, Installation and Servicing".

ISO 9002: "Quality Systems - Models for Quality Assurance in Production and Installation".

ISO 9003: "Quality Systems - Models for Quality Assurance in Final Inspection and Tests".

ISO 9004: "Quality Management and Quality Systems Elements - Guidelines".

EN 45000 Series:

EN 45001: "General Criteria for Operation of Testing Laboratories".

EN 45002: "General Criteria for the Assessment of Testing Laboratories".

EN 45003: "General Criteria for Laboratory Accreditation Bodies".

EN 45011: "General Criteria for Certification Bodies Operating Product Certification".

EN 45012: "General Criteria for Certification Bodies Operating Quality Systems Certification".

EN 45013: "General Criteria for Certification Bodies Operating Certification of Personnel".

EN 45014: "General Criteria for Suppliers - Declaration of Conformity".

S2/222
ATTACHMENT Q-1

# ACOUSTICAL SOCIETY OF AMERICA

OFFICE OF THE
STANDARDS SECRETARIAT

AVRIL BRENIG, Dr P H
STANDARDS MANAGER

335 EAST 45TH STREET, NEW YORK, NEW YORK 10017-3483

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20 March 1991

TO: S.I. Hayek, Chair S2

Re: Letter Ballot LB/S2/215 sent to Accredited Standards Committee S2 on 11 January 1991 and closed on 22 February 1991

SUBJECT: Approval of resolution, adopted by those attending the S2 meeting held on 28 November 1990, with respect to endorsement of the current TC 108 activities and proposal for expansion of ISO/TC 108 scope of work

Enclosed please find tally of the above letter ballot, showing results as follows:

| | | CLASSIFICATION OF MEMBERS | |
|---|---|---|---|
| AFFIRMATIVE VOTES | 5 | P - PRODUCER | 4 |
| NEGATIVE VOTES | 1 * | C - CONSUMER | 0 |
| ABSTENTIONS | 0 | G - GOVERNMENT | 4 |
| NOT RETURNED | 3 | GI - GENERAL INTEREST | 1 |
| TOTAL | 9 | TOTAL | 9 |

* reversed on 6 June 1991

Continuation of results of letter ballot S2/215:

AFFIRMATIVE VOTES:

| | |
|---|---|
| Brown, R. | Institute of Environmental Sciences |
| Hayek, S.I. | Acoustical Society of America |
| Henderson, D.A. | U.S. Dept. of the Air Force |
| Kilcullen, A. | David Taylor Research Center |
| Serbyn, M.R. | Nat'l Institute of Standards and Technology |

NEGATIVE VOTES:

| | |
|---|---|
| * Lally, R.W. | PCB Piezotronics, Inc. |

ABSTENTIONS:

None

NOT RETURNED:

| | |
|---|---|
| Majumdar, P.N. | U.S. Department of the Navy - Naval Sea Systems Command |
| Rawlings, D. | National Electrical Manufacturers Association |
| Stadelbauer, D.G. | Schenck Trebel Corporation |

Avril Brenig
Standards Manager

cc: Vice Chair, Standards Committee
Chair and Vice Chair, ASACOS

Mr. Lally changed his vote to affirmative on 6 June 1991 by a letter

ACOUSTICAL·SOCIETY·OF·AMERICA

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**IMMEDIATE RETURN REQUESTED**

LB/S2/215
11 January 1991

Return to: Letter Ballot Department
Due date: 22 February 1991

ADMINISTRATIVE LETTER BALLOT
ACCREDITED STANDARDS COMMITTEE
ON MECHANICAL SHOCK AND VIBRATION, S2

Topic: Approval of resolution, adopted by those attending the S2 meeting held on 28 November 1990, with respect to endorsement of the current TC 108 activities and proposal for expansion of the ISO/TC 108 scope of work

Authorized by: S.I. Hayek, Chair S2

Distributed by: A. Brenig, ASA Standards Manager

Reference Documents:

ATTACHMENT A - Background material, prepared by D. Muster, U.S. TAG Chair for ISO/TC 108, and presented to S2 on 28 November 1990

ATTACHMENT B - Resolution adopted by those attending S2 meeting on 28 November 1990

Background Information:

At the S2 meeting held on 28 November 1990, Mr. D. Muster, U.S. TAG Chair for ISO/TC 108, detailed highlights of the Milan meeting of ISO/TC 108, held in April 1990, particularly as they related to the emerging technologies in the area of mechanical vibration and shock. One of these areas, on vibration condition monitoring, undertaken by ISO/TC 108 (and whose scope was changed to incorporate this item as one of the examples of its activities) may lead to a proposed change of scope for ISO/TC 108 to encompass the field of condition monitoring (see ATTACHMENT A).

This idea was presented to, and accepted by, those attending the S2 meeting and is embodied in the resolution contained in ATTACHMENT B.

Mr. S.I. Hayek, Chair S2, and the U.S. TAG Chair for ISO/TC 108, Mr. D. Muster, both recommend approval of the resolution contained in ATTACHMENT B.

LB/S2/215
ATTACHMENT-A

REPORT OF D. MUSTER U.S. TAG CHAIR FOR ISO/TC 108

At its Milan meeting, ISO/TC 108 passed a resolution establishing WG17, "Vibration Condition Monitoring" with a scope to develop standards in that specific area. Implementing this resolution did not require any change in the scope of ISO/TC 108. The examples cited as typical of the activities covered by the scope of ISO TC 108 were revised to include one in the field of vibration condition monitoring specifically.

In large part, condition monitoring of machines is based on the measurement and analysis of a machine's vibration characteristics. However, there are other characteristics of a machine's operation and performance, such as lubricant analysis, which in given circumstances, may be equally or, perhaps, more important than a machine's vibration characteristics. Thus, there is a need at the international level for a standards-developing activity which considers all aspects of the condition monitoring and diagnostics of machines.

Thus, I move the following resolution:

"Accredited Standards Committee S2 endorses the activities of the efforts of those in the field of condition monitoring to establish a working group or, if appropriate, a Subcommittee within ISO/TC 108 to develop standards in this area of technology. S2 recognizes that this action would require a change in the scope of ISO/TC 108 and recommends that the ISO Technical Committee change its scope appropriately in order to encompass this new standards-developing activity."

D. Muster, U.S. TAG Chair
for ISO/ TC 108

(Submitted on 28 November 1990)

LB/S2/215
ATTACHMENT B

VOTED that Standards Committee S2 endorse the activities of the efforts of those in the field of condition monitoring to establish a working group pr, if appropriate, a Subcommittee within ISO/TC 108, to develop this area of Technology. It recognizes that this action would require a change in the scope of ISO/TC 108 and recommends that the ISO Technical Committee charge its scope appropriately in order to encompass this new Standards-developing activity.

# INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

## Technical Committee No. 108 • Mechanical Vibration and Shock

Secretariat: American National Standards Institute
Reply to the following address with copy to ANSI:

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ISO/TC 108 STEERING N 1
January 1991

REPORT ON AD HOC MEETING (ISO/TC 108 SECRETARIAT STEERING COMMITTEE) HELD ON TUESDAY, 18 DECEMBER 1990 AT THE BSI CONFERENCE CENTRE AT HAMDEN HOUSE, GREEN STREET, LONDON W.1., UNITED KINGDOM

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Present:

A. Brenig, ISO/TC 108 Secretariat
B. Ennerver, BSI
D. Hansen, Secretariat for ISO/TC 108/SC2 and ISO/TC 108/SC4
P.M. McGuire, Convenor ISO/TC 108/SC2/WG1
A. Olsson, Project Leader
A. Parkinson, Vice Chair ISO/TC 108
R. Rajeswaran, ISO Central Secretariat

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The meeting was opened at 10:30 AM by Ms. A. Brenig, for the Secretariat of ISO/TC 108. (Mr. G. Rasmussen, Chair of ISO/TC 108/SC3, was unable to attend.)

The proposed agenda for the meeting was agreed upon, to basically go over major work items of ISO/TC 108 and its Subcommittees, touching on items which need review and/or recommended action. Several of those present said they had particular items to discuss at this meeting.

It was mentioned by Ms. Brenig that this ad hoc meeting was essentially informal and advisory in nature.

1. Expediting the work of ISO/TC 108

Mr. Olsson brought up the subject of speeding up the work of the Technical Committee and Subcommittees, in taking documents through the various stages (Working Draft (WD), Committee Draft (CD), and Draft International Standard (DIS)), with maximum efficiency.

Mr. Rajeswaran referred to the concept of Project Leaders, and the fact that their appointment was geared to address the need for speeding up the work of developing draft standards and taking them from one stage to another through the various hurdles.

ISO/TC 108 STEERING N 1
January 1991

REPORT ON AD HOC MEETING (ISO/TC 108 SECRETARIAT STEERING COMMITTEE) HELD ON TUESDAY, 18 DECEMBER 1990 AT THE BSI CONFERENCE CENTRE AT HAMDEN HOUSE, GREEN STREET, LONDON W.1., UNITED KINGDOM

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1. Expediting the work of ISO/TC 108 (continued)

In this regard, Mr. Rajeswaran drew attention to the new IEC/ISO Directives where emphasis is laid to the concept of project approach and establishment of editing committees (clause 1.9.5). In special circumstances, in spite of the limited resources at the ISO Central Secretariat, ISO may give the services of a Technical editor to work with the convenor, or project leader, in order to facilitate the preparations of a document in the right format and for its submittal to ISO for further processing. The problem of not receiving comments in time for discussion at meetings was also mentioned.

It was agreed that one goal would be to finalize a document before the meeting was over, to specifically set aside time at the meetings for the editing of documents. These would be prepared for finalization at their respective stages of development and benefit from earlier correspondence, or meetings, organized between the convenor, or project leader, and the ISO Technical Editor. It was thought that whenever a document was nearing completion at a particular stage (CD, DIS), it culd, if found necessary, be submitted to ISO for editorial review prior to finalization by the convenor (or project leader).

These actions would lead to less time being required for document preparation (at the DIS stage, for example) at ISO headquarters. Mr. Rajeswaran urged that more meetings be held between the Technical Committee and Subcommittee plenary meetings so that the working group discussions (at the meetings) would be geared toward development of standards and not solely technical deliberations which did not necessarily lead to resolution or the goal of standardization. Mr. Rajeswaran suggested a good exercise for TC 108 and its Subcommittees would be to see how some documents might be developed on a fast track and, if the methods worked, to utilize them for most documents within the TC and SCs.

ISO/TC 108 STEERING N 1
January 1991

REPORT ON AD HOC MEETING (ISO/TC 108 SECRETARIAT STEERING COMMITTEE) HELD ON TUESDAY, 18 DECEMBER 1990 AT THE BSI CONFERENCE CENTRE AT HAMDEN HOUSE, GREEN STREET, LONDON W.1., UNITED KINGDOM

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2. Communications - use of diskettes

A secondary discussion ensued on the use of diskettes to transmit documents to and from ISO, Geneva, and between convenors and others involved in the documentation process, within the TC and SCs.

Mr. Rajeswaran said he would send Ms. Brenig a copy of a memorandum previously issued by ISO on the acceptability of diskettes in different formats and languages.

3. ISO/CD 6954 Mechanical Vibration - Evaluation of Multifrequency Mechanical Vibration in the Living and Working Area on Ships and Floating Structures

A detailed discussion was held on this document whose issuance recently as a Committee Draft had so far producing substantive negative comments from some Member Bodies (to date, Germany, Sweden, the U.K and the U.S.)

This document had been submitted to members of ISO/TC 108/SC2 and ISO/TC 108/SC4 for vote but apparently did not have consensus at the working group level (ISO/TC 108/SC2/WG2) prior to its issuance as a Committee Draft.

Mr. Rajeswaran outlined two methods of approach with this document:

a) If ISO/TC 108 were to straighten out the problem, ISO/TC 108 would set up a working group with members assigned from ISO/TC 108/SC2 and ISO/TC 108/SC4 with the working group reporting directly to ISO/TC 108. The final documents would be discussed and voted on at the ISO/TC 108 level.

b) If the document is administratively more inclined toward one SC, then it could remain with that SC, which would form the working group again with members from both Subcommittees. The convenor should preferably be from the SC without the administrative responsibility or the main jurisdiction, with perhaps a secretary drawn from the SC with the administrative responsibility.

ISO/TC 108 STEERING N 1
January 1991

REPORT ON AD HOC MEETING (ISO/TC 108 SECRETARIAT STEERING COMMITTEE) HELD ON TUESDAY, 18 DECEMBER 1990 AT THE BSI CONFERENCE CENTRE AT HAMDEN HOUSE, GREEN STREET, LONDON W.1., UNITED KINGDOM

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3. ISO/CD 6954 Mechanical Vibration - Evaluation of Multifrequency Mechanical Vibration in the Living and Working Area on Ships and Floating Structures (continued)

The consensus of opinion at the meeting was to have ISO/TC 108 take responsibility (option a) above), for the further processing of this particular document, ISO/CD 6954, with another group formed within ISO/TC 108 specifically to handle the document henceforth.

It was, therefore, decided unanimously that, once the comments from the circulation of ISO/CD 6954 had been received by Mr. Hansen of DIN (Secretariat for ISO/TC 108/SC2 and ISO/TC 108/SC4), he would submit these to the ISO/TC 108 Secretariat with a recommendation that ISO/TC 108 take the document under its jurisdiction and form a new ISO/TC 108 working group to handle ISO/CD 6954. The ISO/TC 108 Secretariat would then ask DIN for nominations of experts from ISO/TC 108/SC2 and ISO/TC 108/SC4 to serve on the new working group, which would be assigned a new project leader.

The ISO/TC 108 Secretariat will also send P Members a circular letter stating that as a result of the vote on ISO/CD 6954, and these discussions, it is proposed that this work item be transferred to ISO/TC 108 and that the Member Bodies of ISO/TC 108/SC2 and ISO/TC 108/SC4 should nominate members of the new working group.

4. Action items within ISO/TC 108/SC1

Mr. Parkinson said that a Committee Draft, Mechanical Vibration - Mechanical Balancing of flexible rotors (CD 5406), which is the amalgamation of ISO 5406 and ISO 5343, would be available for circulation in February 1991. It should therefore be circulated for vote in time for the September 1991 meeting at Kobe, Japan.

ISO/TC 108 STEERING N 1
January 1991

REPORT ON AD HOC MEETING (ISO/TC 108 SECRETARIAT STEERING COMMITTEE) HELD ON TUESDAY, 18 DECEMBER 1990 AT THE BSI CONFERENCE CENTRE AT HAMDEN HOUSE, GREEN STREET, LONDON W.1., UNITED KINGDOM

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5. Action items within ISO/TC 108/SC2

Mr. Hansen reported that the preparation of Part 4 of ISO 2372 on Gas Turbines should now officially be assigned to ISO/TC 108/SC2/WG1 based on discussions with Mr. McGuire. Mr. McGuire said that the U.S. (P. Maedel) was preparing a first Working Draft (WD). The letter from Mr. Bowen of ANSI was also referred to, as to future liaison and coordination with ISO/TC 192 Gas Turbines.

6. Documents that are related to or come to the attention of ISO/TC 108 in the vibration area

The previous resolution of ISO/TC 43 relating to its responsibility and jurisdiction for all matters concerning acoustics (and noise) was referred to inasmuch as a similar resolution, or other action, for ISO/TC 108, seemed warranted in light of the number of vibration documents surfacing and the propensity for conflict with existing ISO/TC 108 standards. Coordination seemed a key element.

Following discussion, it was agreed that there should be a standing committee of ISO/TC 108, to be called the ISO/TC 108 Secretariat Coordination Committee (of ISO/TC 108 and its Subcommittees). This standing committee would come under the ISO/TC 108 Secretariat Steering Committee.

Mr. Rajeswaran said that he directed in ISO all documents which encroached on, or related to, the scope of ISO/TC 108. Where such a document needs coordination, then it should be passed on to the Secretariat of ISO/TC 108. Ms. Brenig said that in order to properly handle the various vibration documents on which coordination was requested, they would be assigned a number, and this would allow follow up on the development of comments, or other action, for the various documents (and appropriate reporting at meetings).

It was decided that a useful designation for these coordination documents would include the originating committee, the corresponding TC or SC working group, and/or the work item number, e.g., Liaison/Doc 1/ ISO/TC 20/TC 108/Work Item No. XX.

ISO/TC 108 STEERING N 1
January 1991

REPORT ON AD HOC MEETING (ISO/TC 108 SECRETARIAT STEERING COMMITTEE) HELD ON TUESDAY, 18 DECEMBER 1990 AT THE BSI CONFERENCE CENTRE AT HAMDEN HOUSE, GREEN STREET, LONDON W.1., UNITED KINGDOM

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6. Documents that are related to or come to the attention of ISO/TC 108 in the vibration area (continued)

One document on which liaison was required was an ISO/TC 20 document on airplane vibration. Ms. Brenig said that she would contact Ms. Boykin of the Aerospace Industries Association (AIA) in this matter.

It was also mentioned that Mr. Nielsen, DS, utilized a scheme for reporting on liaison documentation for ISO/TC 43.

7. ISO/TC 108/WG17 Vibration Condition Monitoring

Mr. McGuire spoke on the subject of vibration condition monitoring and the new ISO/TC 108/WG17 in this area, the initial meeting of which group will be held in Houston, Texas in March 1991.

Mr. McGuire said that at its last meeting, ISO/TC 108/SC2/WG1 had adopted a resolution stating that the work of ISO/TC 108/WG17 fell under the scope of ISO/TC 108/SC2/WG1. The view that the scope of ISO/TC 108/WG17 fell under ISO/TC 108/SC2/WG1 came following the Milan meeting of ISO/TC 108 at which ISO/TC 108/WG17 was established.

It was considered that the proposed work program which may develop from the initial meeting of ISO/TC 108/WG17 should be regarded before making any recommendations with respect to the work program of ISO/TC 108/WG17, as constituted, and that of ISO/TC 108/SC2/WG1. The current membership list of ISO/TC 108/WG17 (as received) was given to Mr. McGuire, who can see how it relates to that of ISO/TC 108/SC2/WG1.

It was generally agreed that any changes in scope or reallocation of work items would occur officially only at the next meeting of ISO/TC 108, namely, at Kobe, Japan, in September 1991. It was suggested by Ms. Brenig that if working group changes were to be recommended procedurally, however, it would be good to have these, at least in principle, by April/May 1991 in order that they could be submitted to ISO/TC 108 for consideration in time for the September 1991 meeting.

ISO/TC 108 STEERING N 1
January 1991

REPORT ON AD HOC MEETING (ISO/TC 108 SECRETARIAT STEERING COMMITTEE) HELD ON TUESDAY, 18 DECEMBER 1990 AT THE BSI CONFERENCE CENTRE AT HAMDEN HOUSE, GREEN STREET, LONDON W.1., UNITED KINGDOM

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8. ISO/TC 108/SC4 action items

Regarding the further processing of the long-term revision of ISO 2631 Guide for the evaluation of human exposure to whole-body vibration, Mr. Hansen said he would try and reach Mr. Swallow and take some action by January 1991.

9. CEN

Mr. Rajeswaran spoke of a recent meeting between CEN and ISO regarding the need for more transparency on documentation. It has now been agreed that delegates can participate in CEN Committees and vice versa. Joint working groups could be formed at the TC level. Documents will be exchanged between ISO and CEN to arrive at a common standard. These positive new steps were taken at a meeting held on 10 December 1990.

10. CEN items of work paralleled in ISO/TC 43 and whose vibration aspects should be addressed by ISO/TC 108

Mr. Hansen mentioned some areas within CEN on vibration which needed standardization. These items basically corresponded (for vibration) to the newly developed items of work in ISO/TC 43 for the reduction of noise in various environments and included consideration of the reduction of vibration in machines. These items, when received from Mr. Hansen, will be referred to ISO/TC 108.

11. Work Program of ISO/TC 108 and Subcommittees

This was reviewed and amended according to information supplied at the meeting.

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ISO/TC 108 STEERING N 1
January 1991

REPORT ON AD HOC MEETING (ISO/TC 108 SECRETARIAT STEERING COMMITTEE) HELD ON TUESDAY, 18 DECEMBER 1990 AT THE BSI CONFERENCE CENTRE AT HAMDEN HOUSE, GREEN STREET, LONDON W.1., UNITED KINGDOM

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The meeting was considered useful and productive by all present. It was agreed that the present meeting should be held annually, and the the ad hoc committee should be officially named the TC 108 SECRETARIAT STEERING COMMITTEE (to include other members as needed). Future items of discussion would include:

- ISO/TC 108 and Subcommittees - current program of activities
- Coordination Committee (a standing committee) - a review of documents and their status
- Problem areas

The meeting was adjourned at 3:15 PM.

Avril Brenig
For the Secretariat of ISO/TC 108

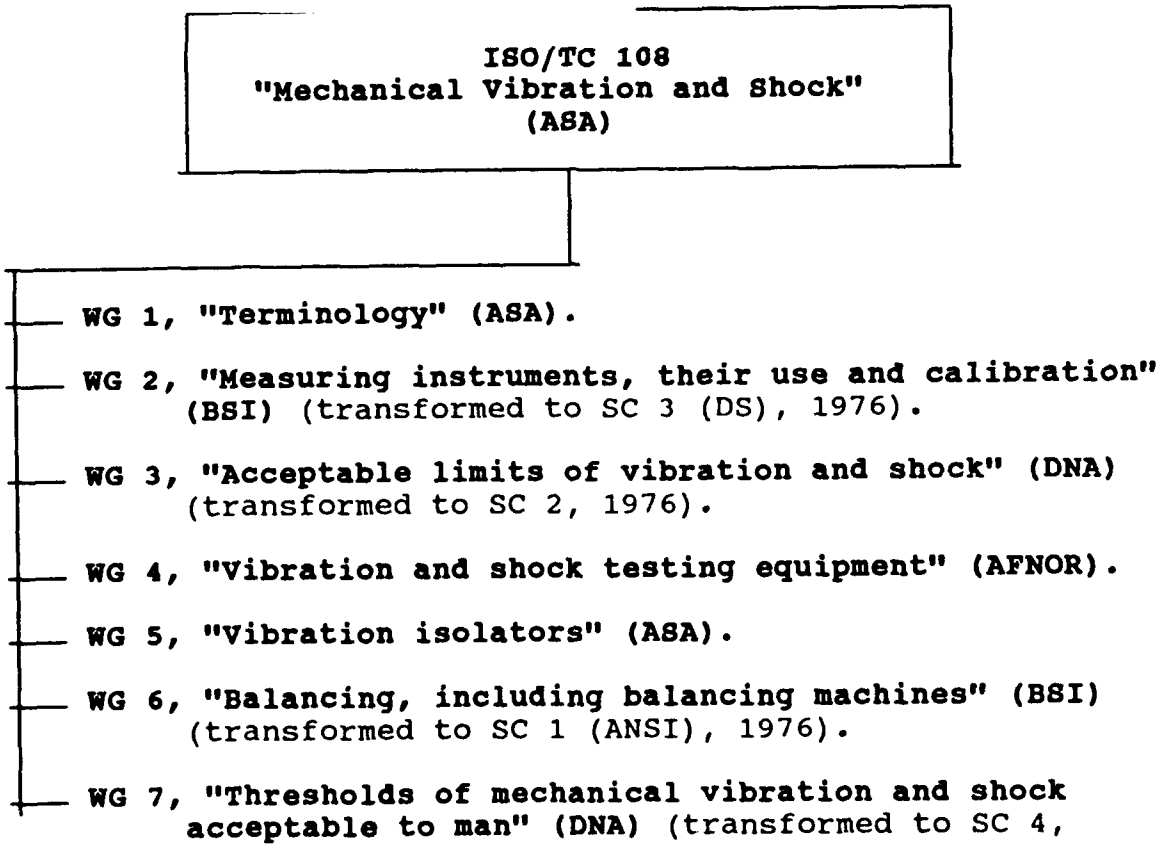


Figure 1
Initial Structure of ISO/TC 108 in 1963

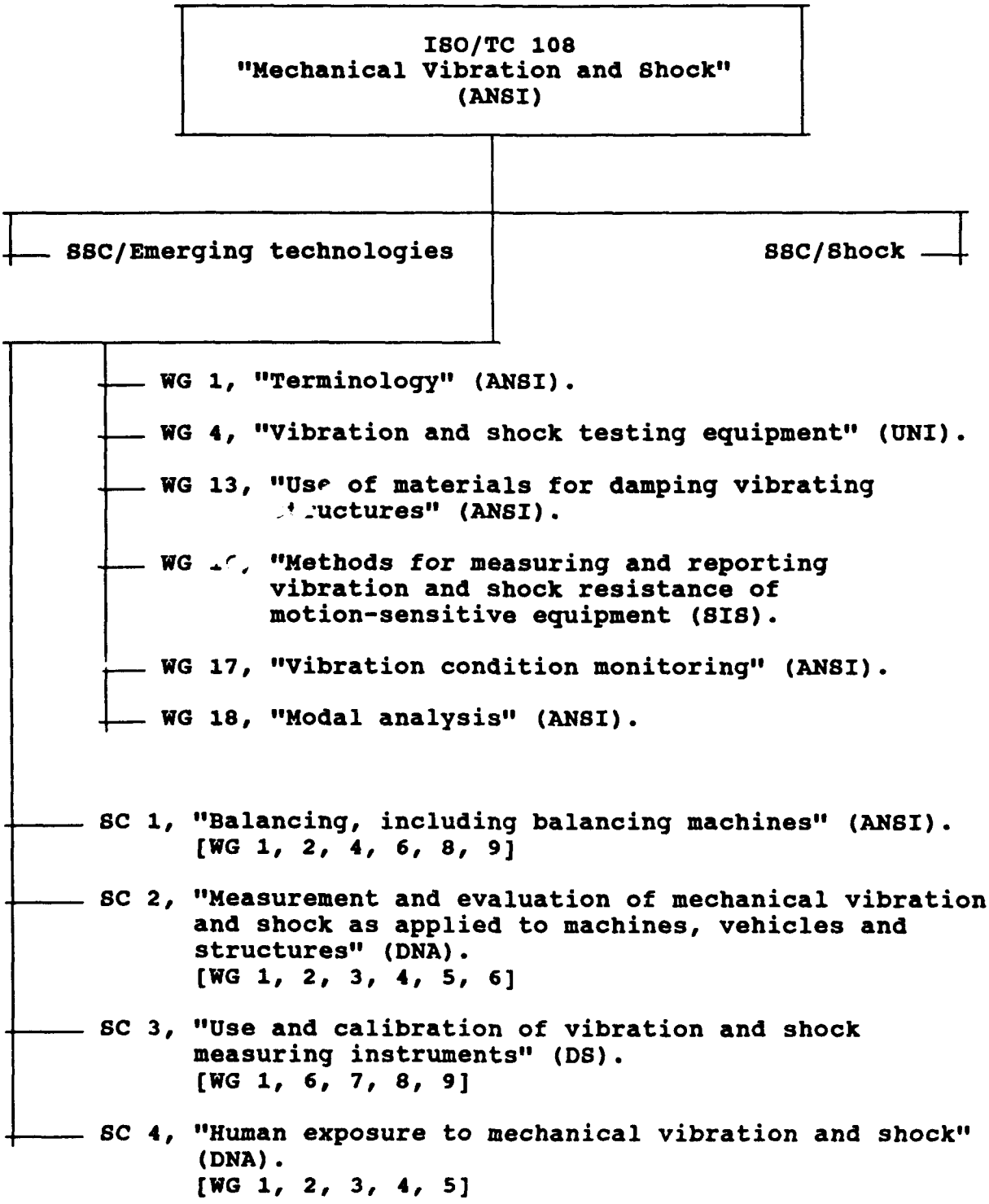


Figure 2
Structure of ISO/TC 108 in May, 1991

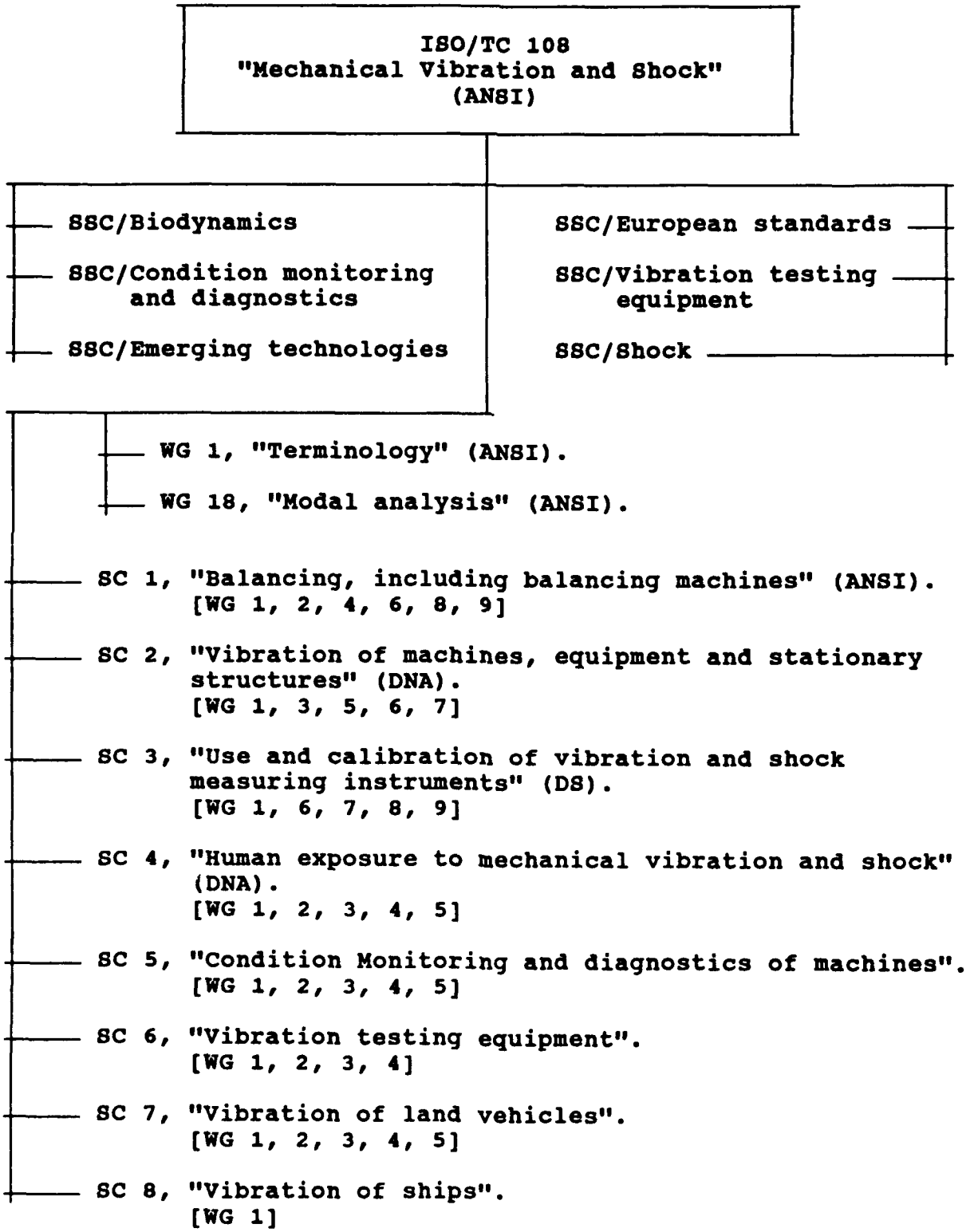


Figure 3
Projected Structure of ISO/TC 108

S2/222
ATTACHMENT T-1

BSI
STANDARDS

British Electrotechnical Committee
2 Park Street
London W1A 2BS
Telephone: 071-629 9000
Telex: 266933 BSILON G
Fax Gr 2 + 3: 071-629 0506

Your ref:

Our ref: L/SEC/IEC/SC 50A

Date: 1 February 1991

Dr Avril Brenig
Secretariat of ISO/TC 108
Acoustical Society of America
335 East 45th Street
New York
New York 10017-3483
USA

Dear Dr Brenig

**ISO/TC 108/WG4 LIAISON WITH IEC/SC 50A**

As a result of the IEC/SC 50A representation at the Milan meeting, March 1990, of ISO/TC 108/WG4 and the subsequently adopted Resolutions 7, 8 and 9, the matter of liaison between the two bodies was discussed at the Osaka meeting, October 1990, of IEC/SC 50A.

It was agreed that there should be close liaison to prevent a possible conflict of interests, particularly in the area of vibration testing.

I am enclosing with this letter a copy of the resolution passed by IEC/SC 50A at the Osaka meeting, which is included as an Annex to the Minutes of that meeting and also includes the name and address of the subsequently nominated liaison member to whom all relevant ISO/TC 108/WG4 papers should be sent.

I have written to Mr Zola informing him of the dates of the next ISO/TC 108/WG4 meeting and it is hoped that he will be able to attend. Mr Goldberg also intends to attend at least part of that meeting.

Having provided liaison member for IEC/SC 50A, we look forward to receiving the name of the liaison member from ISO/TC 108/WG4.

Yours sincerely

G B Robinson

**G B ROBINSON**
Secretary to IEC/SC 50A
GBR/SAY

cc: Mr H Goldberg, Chairman of IEC/SC 50A

**ANNEX H**

At the ISO/TC 108/WG 4 meeting in Milan on 26 and 27 March 1990, Resolutions 7 and 8 were passed, see below, which defined the scope of its work, mentioned liaison with IEC/SC 50A and, in Resolution 9, asked for reciprocal resolutions.

Resolution 7 : To develop international standards related to vibration generators and their ancillary equipment used to conduct tests.

Resolution 8 : TC 108 agrees to establish a Steering Committee for Vibration Generating Systems (SCVG) to be formed to assist the Secretariat in organizing and monitoring the ongoing and future work in this area. The charge to the SCVG includes reviewing proposed work items and preparing a plan for administering the work of ISO/TC 108 related to the vibration testing of machines, vehicles and structures by means of vibration generators, such as electrodynamic and servohydraulic shakers. This plan shall take into account (by liaison) work being performed by IEC/SC 50A with the aim of achieving harmonization.

Resolution 9 : ISO/TC 108 agrees that IEC/SC 50A should be informed of Resolutions 7 and 8 immediately in order that it can consider preparing reciprocal resolutions at its next meeting, to take place in Japan, in October 1990.

At the IEC/SC 50A meeting in Osaka on 29 October 1990, Resolutions 7 and 8 were welcomed and the response to Resolution 9 is contained herein. The scope of IEC/SC 50 work is:

> To prepare standards for environmental testing procedures with the exception of those related to electromagnetic compatibility intended for the preparation of product specifications.

**This has been interpreted for SC 50A to be responsible for the preparation and maintenance of standards for test methods and guidance in allocated areas, currently those of 'impact' (family 'E'), 'vibration' (family 'F') and 'acceleration' (family 'G'), and for the corresponding test summaries for specification writers.**

**It can be seen by comparison with that of ISO/TC 108/WG 4 Resolution 8 that the potential for a conflict of interests does exist as long as the term 'vibration testing' appears in both scopes. It is hoped that by close liaison between the two bodies each will be aware of the other's plans so that duplication or contradictory standards can be avoided.**

**Skills and resources are too rare for them to be expended in performing tasks simultaneously in both committees.**

IEC/SC 50A is pleased to nominate as liaison member:

Mr Maurizio Zola
ISMES
Via Levata
24068 SERIATE BG
ITALY

Tel: +39 35 287 308
Fax: +39 35 287 410

Until a liaison member is appointed by ISO/TC 108/WG 4 correspondence will be sent to Dr A Brenig, the Secretary of ISO/TC 108.

S2/222
ATTACHMENT · U-1

# ACOUSTICAL · SOCIETY · OF · AMERICA

OFFICE OF THE
STANDARDS SECRETARIAT

AVRIL BRENIG, Dr P H
STANDARDS MANAGER

335 EAST 45TH STREET, NEW YORK, NEW YORK 10017-3483

Telephone (212) 661-9404
Telex 960983 AMINSTPHYS NYK
Telefax (212) 949-0473

21 March 1991

TO: S.I. Hayek, Chair S2

Re: Letter Ballot LB/S2/214 sent to Organizational Members of Standards Committee S2 on 22 January 1991 and closed on 5 March 1991

SUBJECT: Approval of Officers and Individual Experts of S2 for 1991/1992

Enclosed please find tally of the above letter ballot, showing results as follows:

| | | CLASSIFICATION OF MEMBERS | |
|---|---|---|---|
| AFFIRMATIVE VOTES | 6 | P - PRODUCER | 3 |
| NEGATIVE VOTES | - | C - CONSUMER | - |
| ABSTENTIONS | - | G - GOVERNMENT | 3 |
| NOT RETURNED | 3 | GI - GENERAL INTEREST | 3 |
| TOTAL | 9 | TOTAL | 9 |

Continuation of results of letter ballot S2/214:

AFFIRMATIVE VOTES:

| | |
|---|---|
| Brown, R. | Institute of Environmental Sciences |
| Hayek, S.I. | Acoustical Society of America |
| Henderson, D.A. | U.S. Dept. of the Air Force |
| Lally, R.W. | PCB Piezotronics, Inc. |
| Serbyn, M.R. | Nat'l. Institute of Standards and Technology |
| Stadelbauer, D.G. | Schenck Trebel Corporation |

NEGATIVE VOTES:

None

ABSTENTIONS:

None

NOT RETURNED:

| | |
|---|---|
| Kilcullen, A. | David Taylor Research Center |
| Majumdar, P.N. | U.S. Dept. of the Navy - Naval Systems Command |
| Rawlings, D. | National Electrical Manufacturers Association |

Dr. Avril Brenig
Standards Manager

cc: Vice Chair, Standards Committee
Chair and Vice Chair, ASACOS.

ACOUSTICAL·SOCIETY·OF·AMERICA

OFFICE OF THE
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**IMMEDIATE RETURN REQUESTED**

LB/S2/214
22 January 1991

Return to: Letter Ballot Department
Due date: 5 March 1991

ADMINISTRATIVE LETTER BALLOT
ACCREDITED STANDARDS COMMITTEE
ON MECHANICAL SHOCK AND VIBRATION, S2
(AND TECHNICAL ADVISORY GROUP FOR ISO/TC 108)

Topic: Approval of Officers and Individual Experts of S2 for 1991/1992.

Approved for circulation by: S.I. Hayek, Chair S2

Distributed by: A. Brenig, Standards Manager

Reference Document: ATTACHMENT A - Lists Officers and Individual Experts for S2

Background Information:

According to ANSI's procedures, under which the Accredited Standards Committees operate, the Officers of the Standards Committees are to be confirmed (at the beginning of their terms), as well as Individual Experts (the latter to be confirmed annually) by the respective Standards Committees.

The Officers and Individual Experts are proposed by the ASA Committee on Standards (ASACOS) as the Secretariat for the Standards Committees, in concert with the Chairs of the respective Standards Committees.

No change in S2 Officers is proposed for 1991/1992 (Chair and Vice Chair). The list of Officers and Individual Experts is attached for your consideration for confirmation. The ASA representatives to S2 for 1991/1992 are listed for your information.

Accredited Standards Committee S2, as the Technical Advisory Group for ISO/TC 108, also ratifies appointments of TAG Chairs of ISO/TC 108. It is proposed that D. Muster be appointed TAG Chair of ISO/TC 108 and U.S. Deputy Technical Advisor for SC 50A for 1991/1992.

ATTACHMENT A

S2 ACCREDITED STANDARDS COMMITTEE ON MECHANICAL SHOCK AND VIBRATION

S2 Appointments

| Position | Individual | Term |
|---|---|---|
| Chairman | S. I. Hayek | 1991-1994 |
| Vice Chairman | R. M. Serbyn | 1991-1994 |
| ASA Representative | S. I. Hayek | 1991-1992 |
| Alt. ASA Representative | R. M. Serbyn | 1991-1992 |
| Individual Experts : | | 1991-1992 |
| | P. K. Baade | " |
| | R. G. Bartheld | " |
| | G. Booth | " |
| | K. M. Eldred | " |
| | R. L. Eshleman | " |
| | S. Feldman | " |
| | D. L. Johnson | " |
| | A. Kukk | " |
| | P. H. Maedel, Jr. | " |
| | D. F. Muster | " |
| | R. M. Serbyn | " |
| | D. G. Stadelbauer | " |
| | A. O. Sykes | " |
| | H. E. von Gierke | " |
| | D. N. Walker | " |
| | S. P. Ying | " |

- U.S. TAG Chair for ISO TC 108 : D. Muster 1991-1992

- U.S. Deputy Technical Advisor for IEC / SC50A : D. Muster 1991-1992

S2/222
ATTACHMENT V-1

# ACOUSTICAL·SOCIETY·OF·AMERICA

OFFICE OF THE
STANDARDS SECRETARIAT

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Telephone (212) 661-9404
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Telefax (212) 949-0473

27 March 1991

TO: S.I. Hayek, Chair S2

Re: Letter Ballot LB/S2/216 sent to Organizational Members of Standards Committee S2 on 1 February 1991 and closed on 15 March 1991

SUBJECT: Approval of new organizational member of S2, ENDEVCO CORPORATION

Enclosed please find tally of the above letter ballot, showing results as follows:

| | | CLASSIFICATION OF MEMBERS | |
|---|---|---|---|
| AFFIRMATIVE VOTES | 8 | P - PRODUCER | 3 |
| NEGATIVE VOTES | - | C - CONSUMER | - |
| ABSTENTIONS | - | G - GOVERNMENT | 3 |
| NOT RETURNED | 1 | GI - GENERAL INTEREST | 3 |
| TOTAL | 9 | TOTAL | 9 |

Continuation of results of letter ballot S2/216:

AFFIRMATIVE VOTES:

| | |
|---|---|
| Brown, R. | Institute of Environmental Sciences |
| Hayek, S.I. | Acoustical Society of America |
| Henderson, D.A. | U.S. Dept. of the Air Force |
| Kilcullen, A. | David Taylor Research Center |
| Kukk, A. | U.S. Dept. of the Navy - Naval Systems Command |
| Lally, R.W. | PCB Piezotronics, Inc. |
| Serbyn, M.R. | Nat'l. Institute of Standards and Technology |
| Stadelbauer, D.G. | Schenck Trebel Corporation |

NEGATIVE VOTES:

None

ABSTENTIONS:

None

NOT RETURNED:

| | |
|---|---|
| Rawlings, D. | National Electrical Manufacturers Association |

Dr. Avril Brenig
Standards Manager

cc: Vice Chair, Standards Committee
Chair and Vice Chair, ASACOS.

S2/222
ATTACHMENT V-3

ACOUSTICAL · SOCIETY · OF · AMERICA

OFFICE OF THE
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Telefax (212) 949-0473

**IMMEDIATE RETURN REQUESTED**

LB/S2/216
1 February 1991

Return to: Letter Ballot Department
Due date: 8 March 1991

ADMINISTRATIVE LETTER BALLOT
ACCREDITED STANDARDS COMMITTEE
ON MECHANICAL SHOCK AND VIBRATION, S2

Topic: Approval of new organizational member of S2, ENDEVCO CORPORATION

Authorized by: S.I. Hayek, Chair S2

Distributed by: A. Brenig, ASA Standards Manager

Reference Documents:

ATTACHMENT A Letter from K.T. Chandy, Endevco Corporation, to A. Brenig, dated 10 December 1990

Background Information:

According to ANSI procedures, applications of all organizational members are submitted to the individual Standards Committee(s) for approval.

We are therefore enclosing the application received from K.T. Chandy requesting organizational membership for ENDEVCO CORPORATION on Accredited Standards Committees S3 (Bioacoustics) and S2 (Mechanical Shock and Vibration).

The Chairs of S2 and S3 recommend approval of the application of ENDEVCO CORPORATION for organizational membership on these Committees.

S2/222
ATTACHMENT V-4
ATTACHEMNT A

**Allied-Signal Aerospace Company**

Endevco Corporation
30700 Rancho Viejo Road
San Juan Capistrano, CA 92675
(714) 493-8181

Allied Signal

10 December 1990

Dr. Avril Brenig
Standards Manager
ASA Standards Secretariat
335 East 45th Street
New York, N.Y. 10017-3483

Subject: **S-2 and S-3 Committees**

Dear Dr. Brenig,

I thank you for inviting me to sit in on the recent S-2 Committee meeting at the ASA conference at San Diego. Endevco would certainly like to participate in the S-2 (Shock and Vibration) and S-3 (Bio-acoustics) standards committees of the Acoustic Society of America in 1991.

I will be the primary representative from Endevco and Roger Volk, Technical Services Manager whom you met during your visit to our facility will be the alternate. All correspondence regarding these committeess may be addressed to both of us at our San Juan Capistrano address.

I recognize that Endevco's membership has to be voted on by the committees. I hope there will be no difficulty in this matter.

I look forward to hearing from you.

Sincerely,

K. Thomas Chandy

cc. P. Conrad
M. Gross
A. Karolys
D. McMahon
R. Volk
R. Whittier

KTC/CAL.PROD.MGMT/108*

S2/222
ATTACHMENT W-1

# ACOUSTICAL SOCIETY OF AMERICA

OFFICE OF THE
STANDARDS SECRETARIAT

AVRIL BRENIG, Dr P H.
STANDARDS MANAGER

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Telephone (212) 661-9404
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Telefax (212) 949-0473

28 March 1991

TO: S.I. Hayek, Chair S2

Re: Letter Ballot LB/S2/218 sent to Organizational Members of Standards Committee S2 on 1 February 1991 and closed on 15 March 1991

SUBJECT: Approval of the current Accredited Standards Committee Procedures, adopted by the four S Committees, and approved by ANSI on 26 April 1988

Enclosed please find tally of the above letter ballot, showing results as follows:

| | | CLASSIFICATION OF MEMBERS | |
|---|---|---|---|
| AFFIRMATIVE VOTES | 7 | P - PRODUCER | 3 |
| NEGATIVE VOTES | - | C - CONSUMER | - |
| ABSTENTIONS | - | G - GOVERNMENT | 3 |
| NOT RETURNED | 2 | GI - GENERAL INTEREST | 3 |
| TOTAL | 9 | TOTAL | 9 |

Continuation of results of letter ballot S2/218:

AFFIRMATIVE VOTES:

| | |
|---|---|
| Brown, R. | Institute of Environmental Sciences |
| Hayek, S.I. | Acoustical Society of America |
| Henderson, D.A. | U.S. Dept. of the Air Force |
| Kilcullen, A. | David Taylor Research Center |
| Lally, R.W. | PCB Piezotronics, Inc. |
| Serbyn, M.R. | Nat'l. Institute of Standards and Technology |
| Stadelbauer, D.G. | Schenck Trebel Corporation |

NEGATIVE VOTES:

None

ABSTENTIONS:

None

NOT RETURNED:

| | |
|---|---|
| Kukk, A. | U.S. Dept. of the Navy - Naval Systems Command |
| Rawlings, D. | National Electrical Manufacturers Association |

Dr. Avril Brenig
Standards Manager

cc: Vice Chair, Standards Committee
Chair and Vice Chair, ASACOS.

ACOUSTICAL SOCIETY OF AMERICA

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Telefax (212) 949-0473

**IMMEDIATE RETURN REQUESTED**

LB/S2/218
1 February 1991

Return to: Letter Ballot Department
Due Date: 15 March 1991

ADMINISTRATIVE LETTER BALLOT
ACCREDITED STANDARDS COMMITTEE
ON MECHANICALSHOCK AND VIBRATION, S2
(AND TECHNICAL ADVISORY GROUP FOR ISO/TC 108)

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Topic: Approval of changes to the current Accredited Standards Committee Procedures, adopted by the four S Committees, and approved by ANSI on 26 April 1988

Authorized by: S.I. Hayek, Chair S2

Circulated By: A. Brenig, ASA Standards Manager

FOR ACTION

Reference Documents:

ATTACHMENT A - Proposed wording to be included in the Accredited Standards Committee Procedures relating to the conciliation of negative votes and positions

ATTACHMENT B - Proposed change in wording for section 8.6 of the Accredited Standards Committee Procedures (listing current wording and proposed change in wording)

Background Information:

At the ASA Committee on Standards (ASACOS) meeting held on Monday, 26 November 1990, in San Diego, California, it was decided that the Accredited Standards Committee Procedures should contain an additional section relating to the conciliation of negative votes and positions on documents sent for ballot. It was also considered appropriate to amend the wording of clause 8.6 of the Accredited Standards Committee Procedures in line with the changes which had occurred in the ANSI procedures, since they were approved by ANSI on 9 September 1987.

Mr. S.I. Hayek, Chair S2, recommends approval of the changes, noted in ATTACHMENTS A and B, to the Accredited Standards Committee Procedures.

ATTACHMENT A

Proposed Amendment (Addition) to the Accredited Standards Committee Procedures

RESPONSES TO CONCILIATION EFFORTS FOR THOSE WITH NEGATIVE COMMENTS

Where responses to attempt reconciliation are sent to an individual with a negative vote or position, a fifteen (15) day period is given for the individual to respond. If no reply is received within fifteen (15) days, then the outstanding comments are circulated to thirty (30)-day review by the Committee, with a statement to the effect that no reply was received by the given deadline.

ATTACHMENT B

EXCERPT FROM ACCREDITED STANDARDS COMMITTEE PROCEDURES

Current wording of Clause 8.6

**8.6 Disposition of Views and Objections.**

When the balloting has been closed, the secretary shall forward the ballot tally to the Chair of the committee and/or, if appropriate, of the subgroup. The Committee Chair shall determine whether the expressed views and objections shall be considered by correspondence or at a meeting.

Prompt consideration shall be given to the expressed views and objections of all participants, including those commenting on the listing in Standards Action. A concerted effort to resolve all expressed objections shall be made, and each objector shall be advised of the disposition of the objection and the reasons therefor.

Substantive changes required to resolve objections, and unresolved objections, shall be reported to the committee members in order to afford all members an opportunity to respond to them or to reaffirm or change their votes within thirty (30) days.

Proposed Change in Wording of Clause 8.6

**8.6 Consideration of Views and Objections.**

When the balloting has been closed, the secretary shall forward the ballot tally to the Chair of the committee and/or, if appropriate, of the subgroup. The Committee Chair shall determine whether the expressed views and objections shall be considered by correspondence or at a meeting.

Prompt consideration shall be given to the written views and objections of all participants, including those commenting on the listing in Standards Action. A concerted effort to resolve all expressed objections shall be made, and each objector shall be advised of the disposition of the objection and the reasons therefor.

Unresolved objections and any substantive changes made in a proposed American National Standard shall be reported to the consensus developing group in order to afford all members an opportunity to respond, reaffirm, or change their votes within thirty (30) days.

When this process is completed in accordance with the written procedures of the standards developer, subsequent comments may be held for the next revision.